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STUDY OF INDUSTRIAL ARTS EDUCATION IN PUBLIC SECONDARY SCHOOLS OF THE SOUTHERN APPALACHIAN REGION. FINAL REPORT.

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THE PURPOSES OF THIS STUDY WERE TO PROVIDE A PROFILE OF INDUSTRIAL ARTS IN THE PUBLIC SECONDARY SCHOOLS OF THE SOUTHERN APPALACHIAN REGION IN 1964-65 AND TO COMPARE THESE FINDINGS WITH RESULTS OF THE NATIONAL STUDY, "INDUSTRIAL ARTS EDUCATION," BY SCHMITT AND PELLEY, AFTER USING THE SAME TWO QUESTIONNAIRES. THE DATA COLLECTED FROM PRINCIPALS AND TEACHERS OF 277 SCHOOLS IN 198 COUNTIES OF GEORGIA, KENTUCKY, NORTH CAROLINA, TENNESSEE, VIRGINIA, AND WEST VIRGINIA WERE CONTROLLED FOR 10 ENROLLMENT SIZES AND FOUR TYPES OF SCHOOLS. FINDINGS INCLUDED--(1) 48.1 PERCENT OF THE REGIONAL SCHOOLS HAD PROGRAMS COMPARED WITH 74 PERCENT NATIONALLY, (2) THE REGIONAL AND NATIONAL GROUPS AGREED ON THE FIRST AND SECOND RANKED OBJECTIVES AS BEING "TO DEVELOP IN EACH STUDENT A MEASURE OF SKILL IN THE USE OF COMMON TOOLS AND MACHINES" AND "TO DISCOVER AND DEVELOP CREATIVE TECHNICAL TALENTS," (3) REQUIRED INDUSTRIAL ARTS PROGRAMS IN ELEMENTARY "FEEDER" SCHOOLS WERE MINIMAL, (4) REQUIRING INDUSTRIAL ARTS AS A COURSE OF STUDY HAD INCREASED, ESPECIALLY IN THE PAST 4 YEARS, AND THE INCREASE WAS SLIGHTLY HIGHER THAN THE NATIONAL GAIN EXCEPT AT THE 10TH GRADE, (5) REGIONALLY, MORE OF THE SCHOOLS ALLOWED SUBSTITUTION OF INDUSTRIAL ARTS FOR SCIENCE THAN NATIONALLY, (6) THE MEAN REGIONAL EXPENDITURES FOR EQUIPMENT WERE $574 AND FOR SUPPLIES $592, ABOUT HALF THE NATIONAL MEAN, (7) THE REGION'S PATTERN OF WORK EXPERIENCE PROGRAMS WAS GENERALLY SIMILAR TO THE NATIONAL PATTERN, (8) REGIONAL SCHOOLS AVERAGED 1.4 INDUSTRIAL ARTS TEACHERS PER SCHOOL COMPARED WITH 2.2 NATIONALLY, (9) THE REGION'S TEACHERS HELD AN AVERAGE OF 5.3 PERCENT MORE BACHELOR'S DEGREES AND 6.6 PERCENT FEWER MASTER'S DEGREES THAN DID THE NATION'S TEACHERS, (10) THE REGION HAD FEWER BELOW AVERAGE STUDENTS ENROLLED, AND (11) REGIONAL SALARIES WERE $1,050 LOWER THAN THE NATIONAL AVERAGE. DATA, THE SURVEY INSTRUMENTS, AND TECHNICAL NOTES ARE INCLUDED. (EM)

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FINAL REPORT
Project No. S-091
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STUDY OF INDUSTRIAL ARTS EDUCATION IN PUBLIC SECONDARY SCHOOLS OF THE SOUTHERN APPALACHIAN REGION

January - 1968

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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Summary Report

Project No. S-091
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STUDY OF INDUSTRIAL ARTS EDUCATION IN PUBLIC SECONDARY SCHOOLS OF THE SOUTHERN APPALACHIAN REGION

Chief Investigator
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January 1, 1968

The research reported herein was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

A Survey of Industrial Arts in the Southern Appalachian Region 1964-65

SUMMARY

1. Problem

In recent years the Southern Appalachian Region has received considerable attention concerning its lack of socio-economic and educational development. The Southern Appalachian Region lags behind the nation in the development of human resources. In 1962 Ford[1] said that the percentage of school dropouts and young high school graduates without salable skills was high.

Industrial arts, as a part of general education, is an exploratory and developmental curriculum area dealing with technology, its tools, materials, machines, processes, and with technological changes. This key curricular area has the potential to impart to our youth the nature of our industrial culture as well as to develop pre-vocational knowledge and technical skills.

Although the status of industrial arts programs had not been determined in the Southern Appalachian Region, this subject area was believed to lag behind the national industrial arts programs. This lag, it was felt, might be a contributing factor in the retarded economics growth of the region. It was important to determine the status of industrial arts programs in the Southern Appalachian Region so that adjustment might be made.

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[1] Ford, Thomas, ed. The Southern Appalachian Region: A Survey. Lexington: University of Kentucky, 1962, frontispiece.

2. Procedure

A survey of public secondary schools with industrial arts programs in the Southern Appalachian Region was made by mail using the same instruments that were used by Schmitt[1] in his national survey. This consisted of two forms mailed to the principal. The principal was asked to give the teacher's form to the industrial arts teacher. Incomplete forms were returned for completion. The Southern Appalachian Region for this study included the region as defined by Ford.[2] It includes parts of Alabama, Georgia, Kentucky, North Carolina, Tennessee, Virginia, and West Virginia. The eleven remaining counties in West Virginia were also surveyed and reported. As no industrial arts programs were reported in the five counties in Alabama, no schools from Alabama are included in the report.

One follow-up letter was mailed in 20 days and a second letter in 30 days after the original mailing. Personal visits were made to 6.8 percent of the respondents to validate the response. Information collected in this manner was found to be reliable at the 99.0 percent level of confidence.

In order to facilitate comparison with the national study the same editing procedure, data organization (tables), and reporting procedure as were used in the national study.

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[1] Schmitt, Marshall L. and Albert L. Pelley, Industrial Arts Education. Department of Health, Education, and Welfare, U. S. Government Printing Office, Washington, D. C., 1966.

[2] Ford, *Op. cit.*

Basically, the data were controlled by 10 enrollment sizes and 4 types of school organization. The 10 sizes were:

1 - 99
100 - 199
200 - 299
300 - 399
400 - 499
500 - 749
750 - 999
1000 - 1499
1500 - 2499
2500 and over

The 4 types were: (1) junior-senior high schools; (2) junior high schools; (3) traditional high schools which includes four-year schools preceeded by eight years of elementary school; and (4) senior high schools which include three and four-year high schools preceded by junior high school.

The data were recorded and analyzed at the West Virginia University Computer Center. The computer output was mostly in counts and percents by item. The tables were organized and computed manually in many instances.

3. Number of Programs

In the Southern Appalachian Region, of 848 schools listed, 48.1 percent had industrial arts programs. Two conditions appeared to be a determining factor as to whether schools had programs. One, the larger the school the more likely it was to have a program. Two, the type of school organization had some influence. Traditional high schools had the highest ratio with 86.2 percent having programs.

Schmitt reported that 73.8 percent of the nation's schools had programs. This was 26.0 percent more schools with programs than in the Southern Appalachian Region.

Schools in the region averaged 1.4 teachers per school compared to 2.2 teachers per school for the nation.

4. Purposes for Teaching Industrial Arts

Teachers in the Southern Appalachian Region ranked the following five purposes as highest from a list of ten purposes for teaching industrial arts.

1. To develop skill in the use of tools and machines.
2. To discover and develop creative technical talent.
3. To develop problem-solving skills related to materials and processes.
4. To develop an understanding of our technical culture.
5. To provide general all-around technical knowledge and skills.

The nation's teachers ranked the same purposes as the five highest but not in the same order.

Principals in the Southern Appalachian Region generally agreed except they would place third the purpose to provide vocational training for those students who would not otherwise have this opportunity.

5. Industrial Arts in Elementary Schools

Feeder elementary schools in the Southern Appalachian Region do not have industrial arts programs in a significant amount. The nation's schools report that 5.8 percent of the elementary feeder schools required industrial arts.

6. Compulsory Industrial Arts

Most of the required industrial arts was in grades 7, 8, and 9 with 23.1, 27.4, and 14.4 percent of the schools respectively requiring industrial arts. In grades 10, 11, and 12 only 4.0, 3.2, and 2.9 percent of the schools required industrial arts. The number of schools requiring industrial arts has increased steadily but slowly since 1954-55.

7. Expenditures for Supplies and Equipment

Southern Appalachian Region schools spent an average of $574 for equipment and $592 for supplies. Schools with an enrollment of under 400 spent an average of $392 less for equipment and supplies annually than the nation's schools. As the size of the school increased the difference in expenditures also increased. This difference is probably due the fact that the nation's schools have more teachers in the larger schools.

8. Industrial Arts Teacher Preparation

Bachelor's degrees were held by 65.8 percent and the master's degrees by 28.3 percent of the teachers in the region. This was about 5.3 percent more bachelor's and 6.6 percent fewer master's degrees than were held by the nation's teachers.

About 83.0 percent of the teachers held a standard certificate, 5.9 percent had substandard certificates, and nearly 12.0 percent did not reply. Two-fifths of the teachers in the Southern Appalachian Region have 30 or fewer credit hours in technical courses. Nearly 40 percent have 41 or more credits in technical courses. At least 40 credits are recommended for adequate preparation.

9. Salaries and Other Income

Southern Appalachian Region teachers average $5,161 annually for nine or ten months of teaching. This averaged $1,050 less than the salary of the nation's teachers. Low salaries may have been a factor in or encouraged 11.0 percent of the teachers to hold an additional teaching job for which they earned $659, and 51.2 percent to hold non-teaching jobs for an average of $903 per teacher. This is about the same as extra-job earnings on the national level.

10. Teachers' Age and Experience

Mean teacher's age was 34.7 in the Southern Appalachian Region with 25.6 percent under 24 years of age. As in the nation, Southern Appalachian Region teachers averaged about 9.6 years of teaching experience, and they had had about 2 years less industrial experience than the nation's teachers. The mean years industrial experience for the region's teachers was 3.4 years.

11. Other Responsibilities

Industrial arts teachers had a variety of non-teaching responsibilities such as: coaching, sponsoring clubs and contests, running the bookstore, and others. It would appear to be more economical for administrative aids to conduct the non-teaching chores. This would free teachers for professional duty.

12. Ability of the Students

In rating the ability of their students, teachers placed 9.0 percent above average, 65.9 percent average, and 25.4 percent below average. Comparing these ratings to the national averages, one finds, according to the teachers' rating that the nation has about 1.0 percent more above average, 7.7 percent fewer average, and 6.5 percent more below average students in industrial arts courses. This would seem to have some implications for teacher training institutions.

13. *Teaching Practices*

Almost 40.0 percent of the teachers prepared their own curriculum guides. The use of textbooks and local district guides accounted for nearly 26.0 percent of the remainder on equal basis.

To start instruction in classes in general industrial arts, woodworking, and general metals teachers most often used the methods: *assign one project to the whole class* and *students select a beginning project from a limited number*.

Classes in electricity, power mechanics, and graphic arts were started most often by *assigning the student a series of sequential projects* and by *allowing free selection of projects*.

Classes were started by the nation's teachers generally by the same methods except they used the method *divide the class into groups and assign different projects to each group* 10.0 percent more often. This method should be especially useful in courses in general industrial arts which is the course most often taught in the nation and the Southern Appalachian Region.

14. *Supplies*

About 95 percent of the students paid for the supplies they used, though the method of collecting for the supplies varied. Eighty-nine percent of the nation's students paid for their supplies in some manner. Almost 5.0 percent of the region's students and 11.0 percent of the nation's students received their supplies free. Many teachers in the region gather industrial waste to supplement the students' supplies.

15. Changes in Courses

Almost two-fifths of the industrial arts teachers reported that they had made changes in their courses. The changes were: new courses for high ability students, general courses, and courses for slow learners. The percent of teachers making changes was equal to the percent of the nation's teachers. However the nation's teachers reported more changes per teacher.

16. Teaching Problems

In indicating their problems in teaching, Southern Appalachian Region teachers ranked the following 5 as first from a list of 20 problems:

1. Arranging and conducting field trips.
2. Finding adequate preparation time for experiments and demonstrations.
3. Keeping up with advances in technology.
4. Keeping equipment in good repair.
5. Securing an efficient text book.

The first 3 ranked positions agreed with the nation's teachers' ranking. In the place of numbers 4 and 5, the nation's teachers placed *finding time for helping individual students* and *providing for the slow learner* respectively. Teaching problems for teachers in the Southern Appalachian Region are about the same as the problems for the nation, but the region's teachers placed greater emphasis on the highest ranked problems.

17. Industrial Arts Courses

Nine course titles identify the industrial arts classes taught in the region. They are (in rank order with the percent that each class was reported): general industrial arts (40.5 percent) drafting(25.5 percent), woodworking (19.9 percent), metalworking (4.4 percent), crafts (2.9 percent), graphic arts (2.1 percent), electricity/electronics (1.9 percent), power mechanics (1.6 percent), and others (0.7 percent).

It may be noted that three courses, general industrial arts, drafting, and woodworking, accounted for 85.9 percent of all classes taught. General industrial arts accounted for almost half of the 85.9 percent of these classes.

At the national level Schmitt identified 16 courses which is 7 more than is taught in the region. The first 8 courses in the nation were also the first 8 in the region. One minor difference in rank order was that drafting was the second most popular course in the region with woodworking third. In the nation's schools the order was reversed. Some major industries were not represented to a significant degree in the courses reported. They are metals, communications, transportation, and electricity/electronics.

18. —Instruction

Class time was usually divided into theoretical (related) and laboratory (experimental and developmental) instruction. Generally theory consumed 20.0 to 30.0 percent of the class time, and the remainder was devoted to laboratory. There was some variation; graphic arts students spent 80.0 to 90.0 percent of their time in the laboratory, and students in power mechanics and electricity/electronics spent about 50.0 percent of their time in the laboratory.

The nation's teachers used their instruction time about the same as did the region's teachers except that the nation's teachers who taught graphic arts used about 10.0 percent less instruction time for laboratory.

19. Class Schedules

Most classes (94.3 percent) were scheduled for one period per day, 84.1 percent were scheduled for 5 days per week, 5.2 percent for 2 days per week, and 6.2 percent were scheduled for 3 days per week. Eighty-four percent of the classes were held 36 weeks or more, 10.4 percent for 18 to 35 weeks, and 5.5 for 13 to 17 weeks.

About two-thirds of the classes in the nation's schools were scheduled for one period per day, 5 days per week, and 36 or more weeks. The major portion of the remaining third of the classes met about equally, one or two periods per day, 5 days per week, and for 13 to 20 weeks.

20. Enrollment

Boys accounted for 98.8 percent of the enrollment in industrial arts courses. The total enrollment was 32,879. Most girls (40 percent) were enrolled grade 12. The average enrollment per teacher was about 18 students. Enrollment was about evenly distributed among all courses. About 48 percent of the students enrolled in industrial arts were in the upper three grades. This indicates the popularity of industrial arts since few students in the upper grades are required to take industrial arts.

21. Course Content

Major areas of instruction are usually identifiable by the course title. However, instruction in industrial arts courses was not limited to the area suggested by the title. In all courses except graphic arts, content was drawn from other subject areas. In the course general woods, for example, the content consisted of 75.0 percent woodworking, the remaining 25.0 percent was divided among drafting, leather, metalworking, electricity/electronics, power mechanics, and others.

22. Observations and Implications

a. While teachers were sincere in responding that they held a first class certificate, almost one-fifth of the teachers observed on the follow-up were teaching out of their field of certification.

b. Many of the laboratories were in a poor condition and ill equipped.

c. Professional assistance was generally not available to the teacher.

d. Students, in some cases, spent too much time hand shaping materials.

e. Instructional materials were not adequate in most programs.

f. Articulation from one level of instruction to the next higher level is usually not well organized or easily identified.

g. In general, teachers of industrial arts have not been able to communicate the ideals of industrial arts education to other professional teachers.

h. The narrowness of industrial arts programs which exist as well as the need for additional programs reflects the poverty of the region.

i. Teachers need assistance for advanced studies and for updating their training. This may be a factor in students failing to elect teaching as a profession.

j. Aid for advanceddegrees should not be limited to a few of the better prepared teachers. Teachers who made lower achievement grades in college may need more aid and training than teachers who were more successful in college.

k. More funds are needed for teachers, salaries, professional assistance, laboratories, equipment, and supplies.

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Final Report

Project No. S-091
Grant No. OE-5-10-101

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CHAPTER I

INTRODUCTION

Industrial Arts education has been a recommended part of the public school curriculum in the Southern Appalachian Region for many years. Although Schmitt reported on the nation's programs in a recent bulletin,[1] the nature and extent of the programs in the Southern Appalachian Region had not been studied. This is a report of a study of industrial arts in the Southern Appalachian Region which parallels the national study and compares the programs of the region to the nation's programs.

In the public school curriculum, industrial arts has developed as a part of general education. The one all-inclusive purpose for teaching industrial arts might be thought of as *helping students understand and find their place in our industrial-technical culture*.

Instruction about our industrial-technical society involves the application of theory to laboratory problems. In industrial arts education it is a practice for the student to: 1. develop a problem; 2. study the concepts involved; and 3. solve the problem using industrial procedures, processes, materials, and machines in an industrial setting. In solving the problem the student becomes involved with his teachers, the library, the laboratory, tools, materials, and fellow students. The student learns to consider and derive meaning from the total environment.

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[1] Schmitt, Marshall L. and Albert L. Pelley, *Industrial Arts Education*, U. S. Department of Health, Education and Welfare, Office of Education, U. S. Government Printing Office, Washington: 1966.

As the student proceeds through the various industrial arts classes, he has many experiences of an industrial-technical nature. These experiences develop in him an understanding of the concepts of materials, tools, machines and, to some extent, the part that industry plays in our culture. Through the knowledge gained in his industrial arts experiences he is helped to make decisions related to his future education and employment. Should it be his decision to discontinue his education at the secondary level, he has developed some knowledge and skill with tools and machines which may aid him in the job he chooses.

The Purpose of the Study

It was the purpose of this study:

1. To provide an objective profile of industrial arts education in the public secondary schools of the Southern Appalachian Region as of the school year, 1964-65. Included were: professional preparation of teachers, their methods of instruction, course content, teachers' problems and responsibilities, their purposes for teaching industrial arts, and other pertinent information about industrial arts programs.
2. To compare the findings of this study to the findings reported by Schmitt of national industrial arts programs.

This study indicates the extent to which industrial arts was being utilized as an educational tool, and its rate of increase in the total general education programs of public secondary schools in the Southern Appalachian Region since 1954.

Importance of the Study

Industrial arts education, as a part of general education, is an exploratory and developmental area dealing with technology, its tools, materials, processes, and with technological changes. This important curriculum area has the potential to interpret the nature of and impart an understanding of our industrial culture. It also has the potential for developing technical literary, pre-vocational and technical skills, and guiding youth in the choice of a career.

If the citizens of the Southern Appalachian Region are to take their place in the American society, their education must be commensurate with the education of other citizens. This study will provide a necessary point of reference for future planning and development of programs in the region.

The Universe

Public secondary schools which contained grades 7-12 in 198 counties making up parts of Georgia, Kentucky, North Carolina, Tennessee, Virginia and all of West Virginia were included in this survey. This area, with the exception of eleven western counties in West Virginia, but including five counties in Alabama, was identified by Ford as the Southern Appalachian Region.[2] Sample design, a map of the region, and statistical treatment and other technical notes are included in Appendix C.

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[2] Ford, Thomas R., ed. The Southern Appalachian Region: A Survey, Lexington: University of Kentucky, 1962, fronticepiece.

Collecting the Data

The two instruments (Appendix B) used to collect the data for this study were the same as those used by Schmitt in the national study. The instruments were mailed to the principals of 408 public secondary schools in the Southern Appalachian Region. This included all secondary schools in the region listed by their state or school district as having industrial arts programs. Principals were requested to complete Part I and have each of their industrial arts teachers complete a copy of Part II.

Of the 408 schools, 310 responded. Two hundred, seventy-seven of the responses were usable. These responses supplied the data included in this report. Table I gives more detailed information about the responding schools.

Organization of the Data

Basically, the data were controlled by ten enrollment sizes and four types of school organizations. The ten enrollment sizes were:

1 - 99
100 - 199
200 - 299
300 - 399
400 - 499
500 - 749
750 - 999
1000 - 1499
1500 - 2499
2500 and over

The four types of schools were:

1. Junior-senior high schools, which include five-year and six-year high schools.

2. Junior high schools, which include two-year and three-year schools.

3. Traditional high schools, which include four-year schools preceded by eight years of elementary school.
4. Senior high schools, which include three-year and four-year senior high preceded by junior high school.

CHAPTER II

INDUSTRIAL ARTS PROGRAMS

Information about industrial arts programs as reported by the principals in the Southern Appalachian Region is given in this chapter. Attention is called to the number of industrial arts programs, enrollment size, organizational type of school, and other information as it relates to school administration. (Appendix A contains the complete tables and Appendix B, the principal's and teacher's questionnaire forms.)

Number of Programs

Of 848 public secondary schools in the region, 408 (48.1 percent) were listed as having industrial arts programs. In the region as in the nation, two conditions appeared to be influencing factors in the existence of a program of industrial arts. One, the larger the school the more likely it was to have a program. The number of programs decreased in proportion to enrollment size from the larger to the smaller schools. The one school with an enrollment over 2500 had a program, and 89.5 percent of the schools with an enrollment of 1500-2499 had programs. The number of schools with programs continued to decrease to the enrollment sizes of 300, 200, and 100, each of which had less than 30 percent with programs. Two, the type of school appeared to affect the establishment of a program. Traditional high schools had the highest ratio, with 86.2 having programs. The junior-senior high schools had the least number of programs, 30.9 percent. Table II indicates the number of schools with and without programs by size and type of school. This information is illustrated in Figure 1.

Fewer students in the region had an opportunity to elect industrial arts courses than on the national level because almost 26 percent fewer schools offered programs. A larger percent of the nation's schools offered industrial arts in every type of school and in every enrollment size except 2500 and over. (There was only one school of this size in the region.)

Purpose for Teaching Industrial Arts

Since the identification of goals is important to the success of any curriculum area in education, both principals and teachers were asked to rate ten purposes for teaching industrial arts (see Tables III, IV, V, and VI, and text Tables A and B). Ranked highest by 59.4 percent of the principals and 69.0 percent of the teachers was the purpose *to develop in each student a measure of skill in the use of common tools and machines*. The purpose *to discover and develop creative technical talents* was ranked second by 48.0 percent of the principals and 62.0 percent of the teachers. In the national study, these same objectives were ranked 1 and 2 by principals and 1 and 3 by teachers.

The ten purposes for teaching industrial arts appeared to cluster when the mean degree of emphasis was considered. Text Table C indicates that about the same rankings prevail, however. As some purposes shared a common mean, those purposes which ranked lowest moved up to where no objective had a mean lower than sixth place.

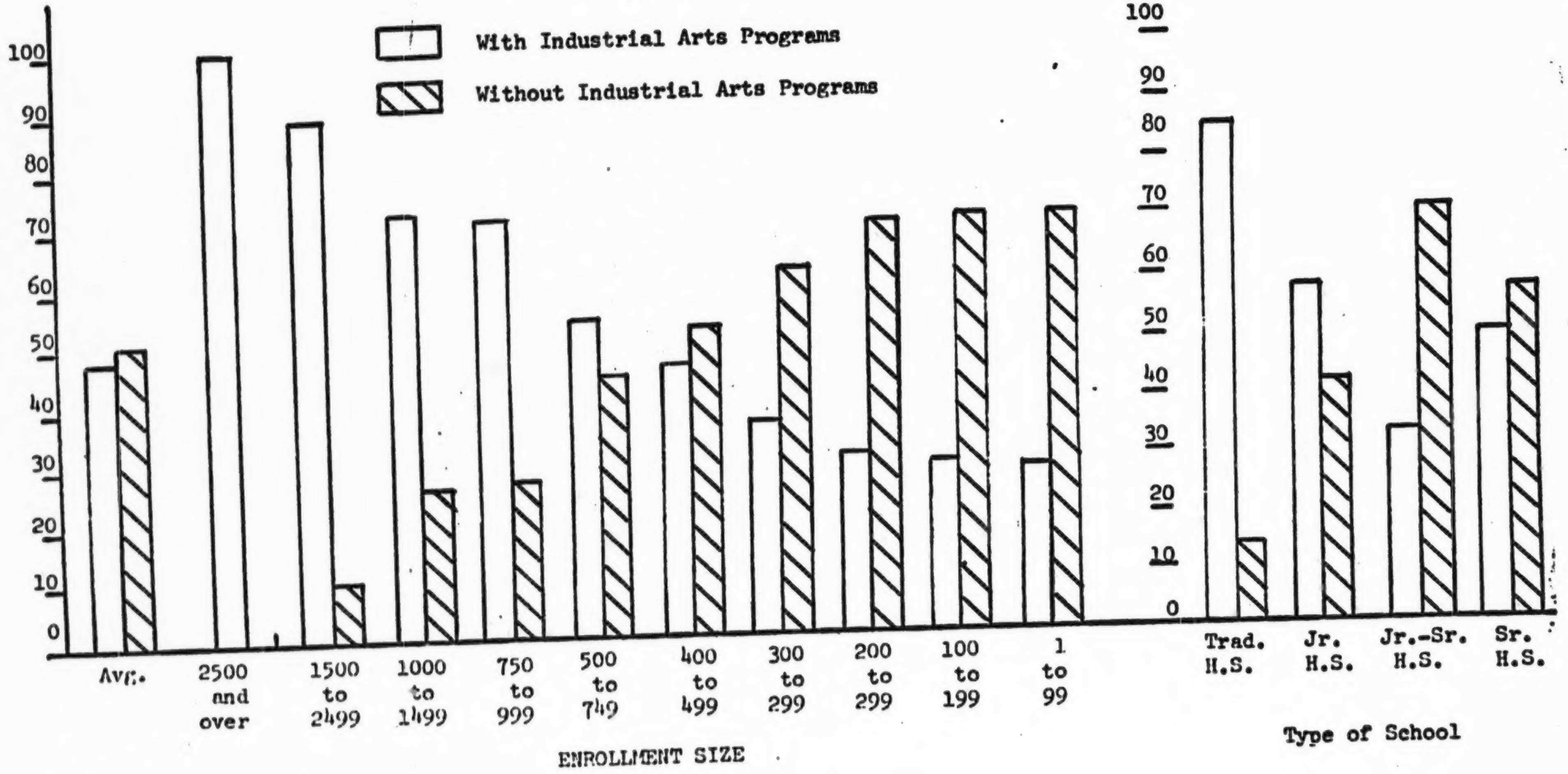


FIGURE 1 Percent of public secondary schools with and without industrial arts programs by enrollment size and type of school: Southern Appalachian Region, 1964-65.

TABLE A - Purpose of industrial arts rated by public secondary school principals according to degree of emphasis, and ranked according to percent believing each objective rated high: Southern Appalachian Region, 1964-65.

Rank	Purpose	Degree of Emphasis			Non Response
		High	Medium	Low	
1	To develop in each student a measure of skill in the use of common tools and machines.	59.4	24.8	2.3	13.8
2	To discover and develop creative technical talents.	48.0	39.7	5.8	6.5
3.	To provide vocational training for those students who would not otherwise have this training.	40.1	37.9	16.2	5.8
4.	To develop problem-solving skills related to materials and processes.	35.0	51.3	7.8	6.1
5.	To provide general all-around technical knowledge and skills.	33.2	53.8	6.5	6.5
6.	To provide prevocational experiences for those students interested in technical work.	32.9	35.2	15.8	16.1
7.	To develop an understanding of our technical culture.	30.7	52.0	10.1	3.6
8.	To develop worthy leisure-time interests.	29.0	46.1	11.3	13.5
9.	To develop consumer knowledge and appreciation in the use of industrial products.	26.7	49.8	15.5	7.9
10.	To develop an understanding of the application of science and mathematics.	24.2	50.5	18.8	6.5

TABLE B - Purposes of industrial arts rated by industrial arts teachers according to degree of emphasis, and ranked according to percent believing each objective rated high: Southern Appalachian Region, 1964-65.

Rank	Purpose	Degree of Emphasis			Non Response
		High	Medium	Low	
1.	To develop a measure of skill in the use of common tools and machines.	69.0	28.6	2.2	.3
2.	To discover and develop creative technical talents.	62.0	31.5	4.6	1.9
3.	To develop problem-solving skills relating to materials and processes.	54.4	38.0	3.0	4.6
4.	To provide general all-around technical knowledge and skills.	51.5	40.2	5.4	3.0
5.	To develop an understanding of our technical culture.	50.1	42.3	3.8	3.8
6.	To develop consumer knowledge and appreciation in the use of industrial products.	45.0	41.8	11.1	2.2
7.	To provide pre-vocational experiences of an intensified nature for those students interested in technical work.	42.3	36.4	18.9	2.4
8.	To develop worthy leisure-time interests.	39.9	42.9	16.2	1.1
9.	To provide vocational training for students who would not otherwise have this opportunity.	39.1	34.0	25.3	1.6
10.	To develop an understanding and appreciation of science and mathematics	36.9	48.8	10.8	3.5

TABLE C - Mean degree of emphasis placed by industrial arts teachers and principals in public secondary schools on various purposes for teaching industrial arts: Southern Appalachian Region, 1964-65.

Rank (Teachers)	Purpose	Mean T	Mean P	Rank (Principals)
1	To develop in each student a measure of skill in the use of common tools and machines.	2.7	2.7	1
2	To discover and to develop creative technical talents in students.	2.6	2.6	2
3	To develop problem-solving skills relating to materials and processes.	2.5	2.3	4
4.	To provide general all-around technical knowledge and skills.	2.4	2.3	
5	To provide pre-vocational experience of an intensified nature for those students interested in technical work.	2.3	2.3	
	To develop consumer knowledge and appreciation and use of industrial products.	2.3	2.2	5
	To develop an understanding of the application of science and mathematics.	2.3	2.1	6
6	To provide vocational training for students who would not otherwise have this opportunity.	2.2	2.4	3
	To develop worthy leisure-time interests.	2.2	2.1	6

Industrial Arts in Elementary Schools

Three (1.1 percent) of the 277 public secondary schools responding to the region reported that industrial arts was required in their "feeder" elementary schools. Four schools (1.5 percent) reported that some of their "feeder" schools required industrial arts. About 77 percent of the schools said that industrial arts was not required, while 5.8 percent said that some "feeder" schools had industrial arts. Table VII contains additional data.

The nation's schools with junior high grades reported that 5.6 percent of the "feeder" schools required industrial arts and 6.0 percent said that it was required in some "feeder" schools.

Compulsory Industrial Arts

Table D indicates that by the school year 1962-63, industrial arts was required for seventh grade students in 23.1 percent of the schools, eighth grade students in 27.4 percent of the schools, and ninth grade students in 14.4 percent of the schools. In grades 10, 11, and 12 it was required in 4.0, 3.2, and 2.9 percent of the schools.

Industrial arts as a required course of study increased from 1954-55 to 1962-63 at all grade levels, with most of the increase occurring in the last four years. Table D indicates that the greatest increase over this eight year period was in the eighth grade with a 6.6 percent increase in the number of schools requiring industrial arts. Next was the seventh grade with 4.7 percent, then the ninth grade with 4.3 percent. Increases in the requirement of industrial arts in the region paralleled, but were slightly higher than national gains reported by Schmitt in all except the tenth grade. The increase in this grade

TABLE D - Percent of public secondary schools requiring industrial arts for students by grade level: Southern Appalachian Region, 1954-55, 1958-59, 1962-63 and percent of increase 1954-55 to 1962-63 in the Southern Appalachian Region and the nation.

School Year	Percent by grade level					
	7	8	9	10	11	12
1954-55	18.4	20.8	10.1	2.9	1.5	1.5
1958-59	19.5	21.7	10.5	2.9	1.8	1.8
1962-63	23.1	27.4	14.4	4.0	3.2	2.9
	Percent increase 1954-55 to 1962-63					
S.A.R.	4.7	6.6	4.3	1.1	1.7	1.4
U.S.	3.9	5.2	1.6	1.1	.9	.7

was the same. Data on compulsory industrial arts by grades and by number of weeks required are reported in Table VIII and IX.

Substitution of Industrial Arts for Science

Substitution of industrial arts for science was allowed by 5.4 percent of the secondary schools. Almost 17 percent of the schools with an enrollment of 100-199, and 8.0 percent of the schools with enrollments of 300-399 and 500-749 allowed substitution of industrial arts for science. Generally, as the size of the school increased, the substitution of industrial arts for science decreased. Nine percent of the junior high and 8.0 percent of the junior-senior high schools permitted substitution. Less than 2.0 percent of the traditional high schools and none of the senior high schools permitted substitution. Table X gives additional information concerning the substitution of industrial arts for science.

In comparison, 3.6 percent of the nation's schools allowed industrial arts to be substituted for science. Traditional high schools permitted the greatest amount of substitution, with 5.4 percent.

Expenditures for Equipment and Supplies

The mean expenditure for equipment in schools in the Southern Appalachian Region was $574 and for supplies, $592. Figure 2 reveals that schools with enrollments up to 400 spent from $450 to $500 for equipment and $250 to $430 for supplies. Expenditures for supplies was greater in larger schools, however, the increase was not in proportion to the enrollment increase. For example, schools with an enrollment of 400-499 allocated a mean of $491 for supplies, whereas, schools with an enrollment of 1500-2499 allocated $788. Teachers of industrial arts

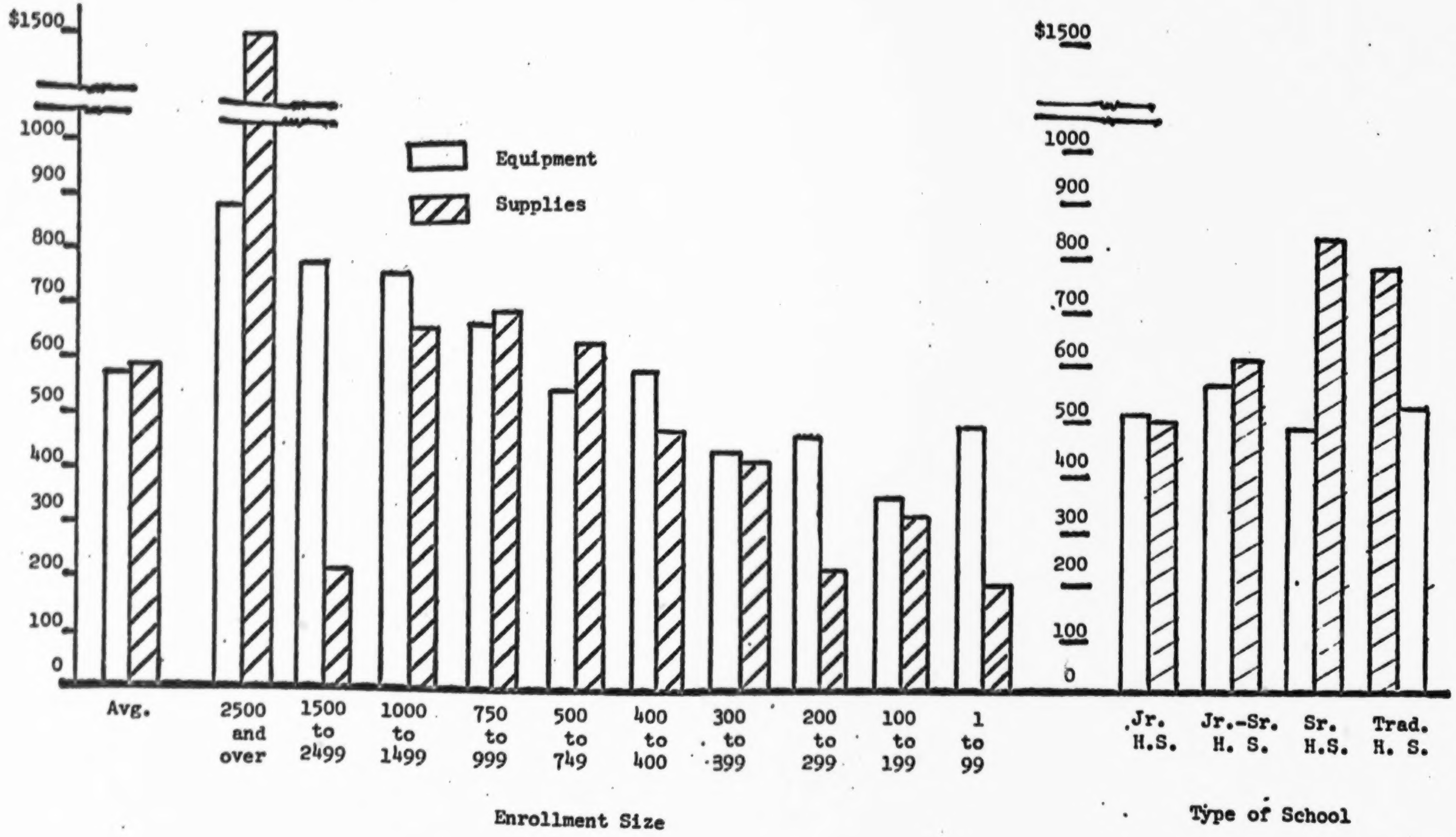


FIGURE 2 Mean expenditures for industrial arts equipment and supplies by enrollment size and type of school: Southern Appalachian Region, 1964-65.

should carefully evaluate the size and quality of the "project" to determine its educative value in order to justify the cost of the program.

Figure 2 indicates that the senior high schools spent the most for supplies, with $815 per school. Junior high schools spent the least, $497 per school. For equipment, the traditional high school spent the most,$766, and the senior high school spent the least, $480. Additional data may be seen in Tables XI and XII.

The nation's schools spent, on the average, twice as much for equipment and supplies as the schools in the region. Their mean expenditure for equipment was $1,063 and for supplies, $1,220.

Work Experience Programs

Work experience in general education was offered by 24.8 percent of the schools with industrial arts programs. The industrial arts teacher administered in-school, non-remunerative work experience programs in 15.5 percent and remunerative work experience programs in 6.1 percent of the schools. Out-of-school work experience programs in general education were offered to 3.3 percent of the students. More information about work experience programs is included in Table XIII.

The region's pattern of work experience programs in general education was similar to the national pattern. One percent less of the nation's schools conducted work experience programs. Students in 2.9 percent more of the schools in the region received remuneration for their work experience.

CHAPTER III

INDUSTRIAL ARTS TEACHERS: RESPONSIBILITIES AND TEACHING PRACTICES

For educational aims to be attained in any curriculum area, there must be capable teachers with the full support of the school administration. This chapter presents data about industrial arts teachers, their preparation, income, responsibilities, and teaching practices.

Number of Teachers

Principals in the 277 responding schools in the region reported 403 industrial arts teachers in those schools, a mean of 1.4 teachers per school (Figure 3). Only 6 percent of the schools had more than two industrial arts teachers. The nation's schools had a mean of 2.2 teachers per school and 27.7 percent of the schools had more than two industrial arts teachers.

In the region, as in the nation, the enrollment size was the controlling factor for the number of industrial arts teachers in the school. Data concerning the number of teachers by the size and type of school are contained in Table XIV.

Types of Certificates and Degrees Earned

Ninety-four percent of the region's industrial arts teachers had degrees. The bachelor's degree accounted for 65.8 percent and the master's degree was held by 28.3 percent of the teachers. Table XV indicates that larger schools had a higher percentage of teachers with the master's degree. The type of school organization seemed to have little, if any, effect on the type of degree.

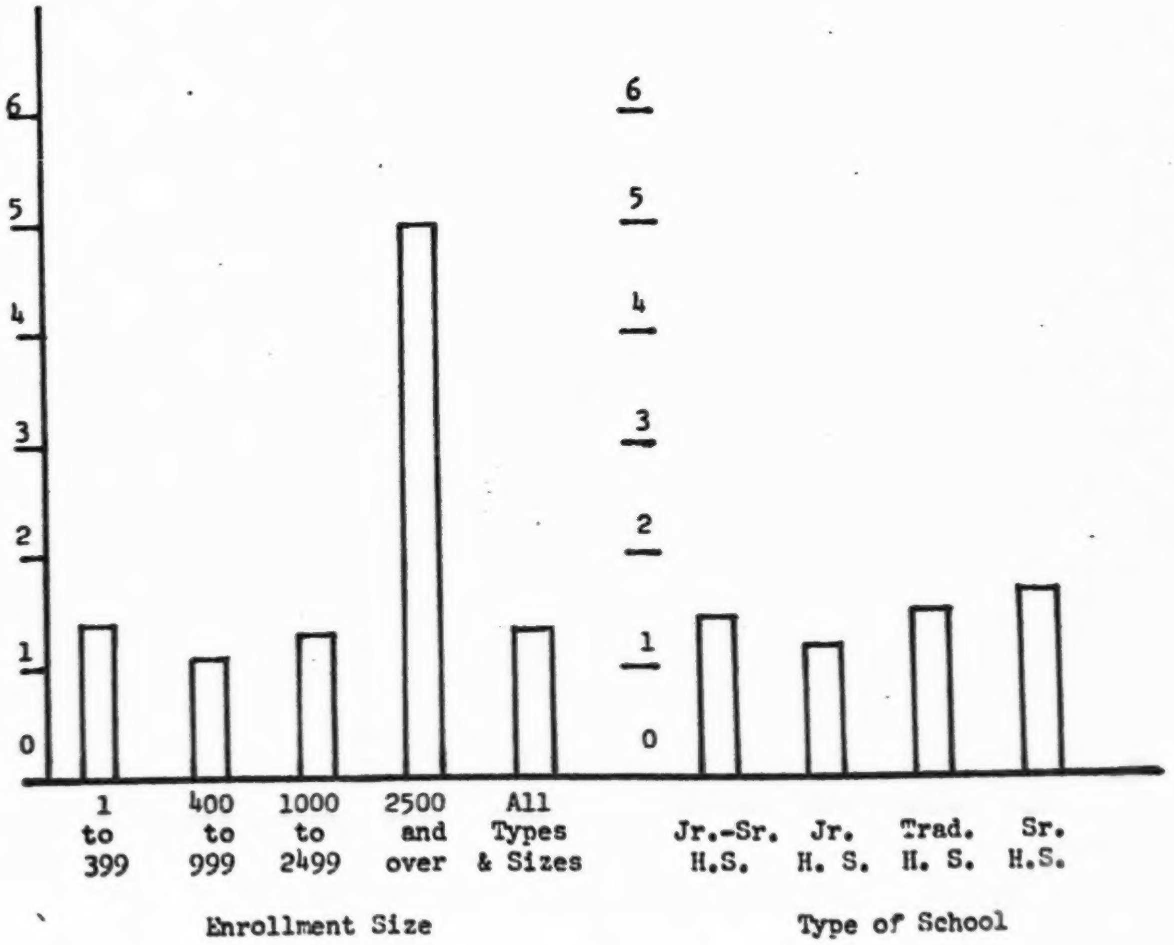


FIGURE 3 Mean number of industrial arts teachers per school, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Eighty-two and one-half percent of the industrial arts teachers held a regular or standard certificate, and 5.9 percent reported having emergency or sub-standard certificates. There was no response from 11.6 percent of the teachers. Table XV contains additional information about the qualifications of teachers.

The percent of teachers with degrees was approximately the same in the region as in the nation. The ratio differed, with 5.3 percent more bachelor's degrees in the region and 6.6 percent more master's degrees in the nation. On the follow-up it was discovered that many teachers are teaching out of their field but are certified in another field.

Educational Background

Figure 4 illustrates the preparation of teachers according to semester hours earned in four curriculum areas. The areas were: (1) science and mathematics, (2) technical courses, (3) educational courses, and (4) all other courses.

Thirty-six and one-half percent of the teachers held more than 20 semester hours in science and mathematics, 37.5 percent of the teachers had between 11 and 20 semester hours, and 19.0 percent had less than 11 semester hours in the area. In education courses, 73.0 percent of the teachers had more than 20 semester hours and 18.1 percent had between 11 and 20 semester hours.

Schmitt stated that a minimum of 40-45 semester hours in technical courses were considered necessary for industrial arts teacher preparation. In the region, 38.8 percent of the teachers had 41 or more semester hours in these courses. Twenty-one to 40 semester hours were

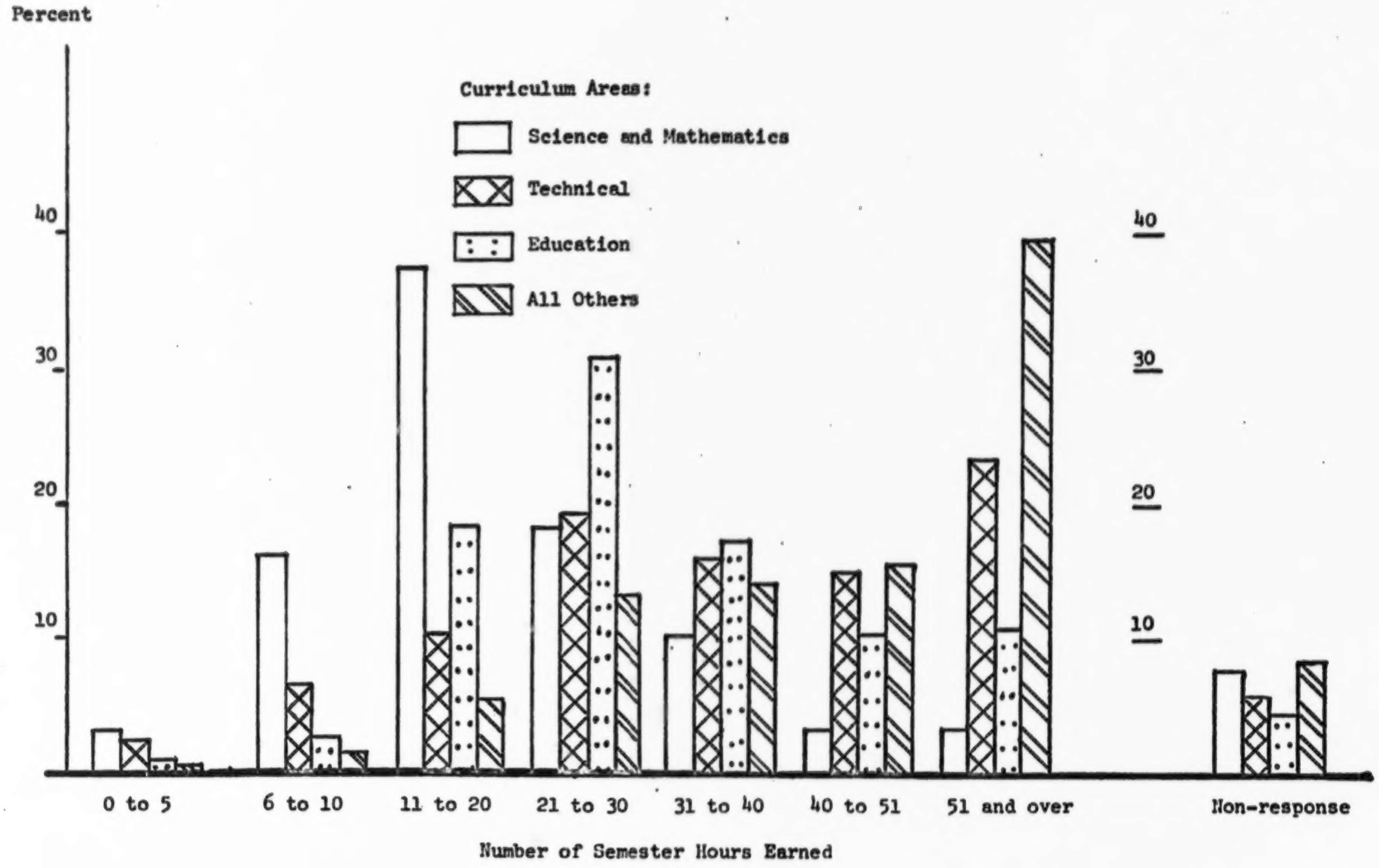


FIGURE 4 Percent of industrial arts teachers in public secondary schools by number of semester hours earned in various curriculum areas: Southern Appalachian Region, 1964-65.

held by 35.1 percent and fewer than 21 hours were held by 20.2 percent of the teachers.

Table XVI, XVII, XVIII and XIX contain additional information on teacher preparation. These tables indicate that 57.4 percent of the teachers holding bachelor's degrees and that 56.2 percent of the teachers with master's degrees earned 40 or less semester hours in technical courses. More than 40 semester hours in technical courses were completed by 38.4 percent of the teachers with bachelor's degrees and 38.1 percent of the teachers with master's degrees. More than half of the industrial arts teachers in the region did not have the recommended minimum number of semester hours in technical courses. Of the nation's teachers, 51.0 percent with bachelor's degrees and 62.2 percent with master's degrees held 41 or more semester hours in technical courses.

Twenty-one or more semester hours in education courses were held by 68.7 percent of the region's reachers with bachelor's degrees and 85.8 percent with master's degrees. On the national level, 80.2 percent of the teachers with bachelor's degrees and 92.6 percent of the teachers with master's degrees had 21 or more semester hours in education courses.

As the nation's teachers advanced to the master's degree they gained in the number of credits in technical and education courses. In the region, teachers advancing to the master's degree gained in the number of credits in education courses but not in technical courses.

Teachers' Salaries

A study of annual gross teachers' salaries in the region in 1964-65 revealed a uniform pattern when salaries were compared by size of school. Figure 5 shows the region's mean annual gross teacher's salary to be $5,161. Teachers in schools with an enrollment between 100 and 500 received below the mean, with an average of about $4,700 annually. Schools with enrollments between 500 and 1500 paid teachers approximately the mean salary. Those with enrollments of 1500 to 2499 paid their teachers above the mean, with an average of nearly $6,000 annually. The number of schools with less than 100 and more than 2500 were too few to represent a population.

Half of the teachers in the region received their pay for ten months of teaching and 40.8 percent taught nine months. Almost all of the others were employed for eleven or twelve months.

Industrial arts teachers' salaries in the region averaged $1,050 lower than salaries for the nation's teachers. The number of months taught and the mean teaching experience were about equal to those of the nation's teachers. Table XX contains additional information about teachers' salaries. This lower salary rate results in many industrial arts teachers leaving the region for better paying positions.

Other Income

Table XXI indicates that 11 percent of the industrial arts teachers had a second teaching job at which they earned an average of $659 annually. Table XXII reveals that 51.2 percent of the industrial arts teachers in the region earned an average of $903 in non-teaching jobs. Teachers in the region averaged $19 more annually than the nation's teachers for second teaching jobs, and $161 less for non-teaching jobs. It appears that teachers who are loyal to the region's schools cannot support themselves on the income from the profession.

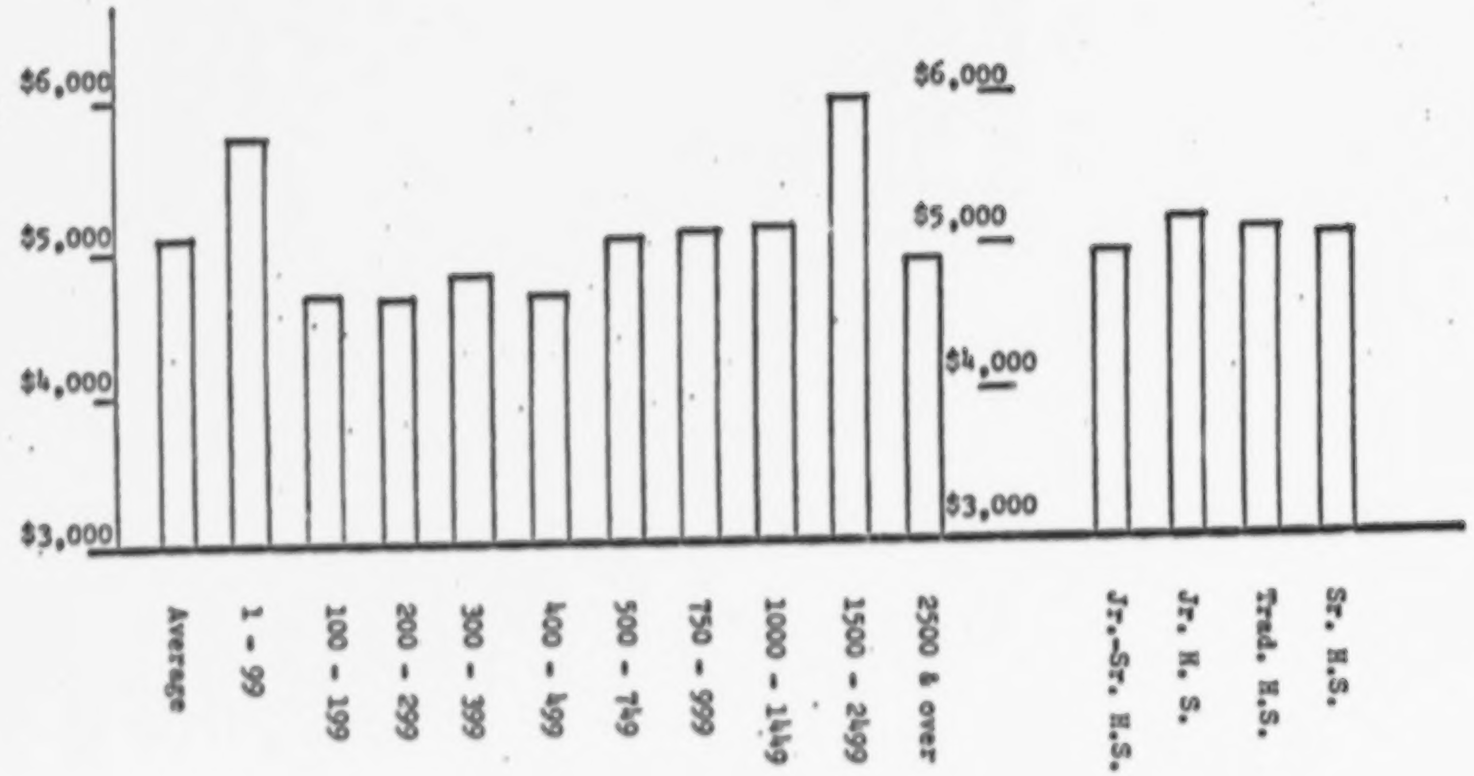


FIGURE 5 Mean annual gross salary of industrial arts teachers in public secondary schools by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Teaching Experience and Teachers' Ages

Almost two-thirds (64.4 percent) of the industrial arts teachers in the region had less than 11 years teaching experience, 17.8 percent had from 11 to 20 years experience, and 17.5 percent had 21 or more years experience. Their mean number of years in teaching was 9.6. The mean of teaching experience for teachers in the region differed one-tenth of one year from the nation's mean of 9.5 years. These data are represented in Figure 6. Table XXIII gives additional information about teachers according to enrollment size and type of school and by number of years taught.

Table XXIV records data concerning teachers' industrial experience. Industrial arts teachers in the region had an average of 3.4 years of full-time industrial experience and 23.3 percent of the teachers reported having no industrial experience. This lack of industrial experience may be accounted for partially by the fact that 25.6 percent of the region's teachers were under 24 years of age and 55.0 percent were under 35 years of age (Figure 7 and Table XLVI). Industrial arts teachers in the nation averaged about two years more industrial experience than those in the region. Industrial experience, especially in the manufacturing industries, is highly desirable.

Other Responsibilities

Industrial arts teachers had a variety of school responsibilities in addition to teaching. Table XXV reveals that: 20.8 percent had industrial arts contests, 15.4 percent sponsored athletic contests (non-coaching), 15.7 percent coached athletics, 14.6 percent sponsored

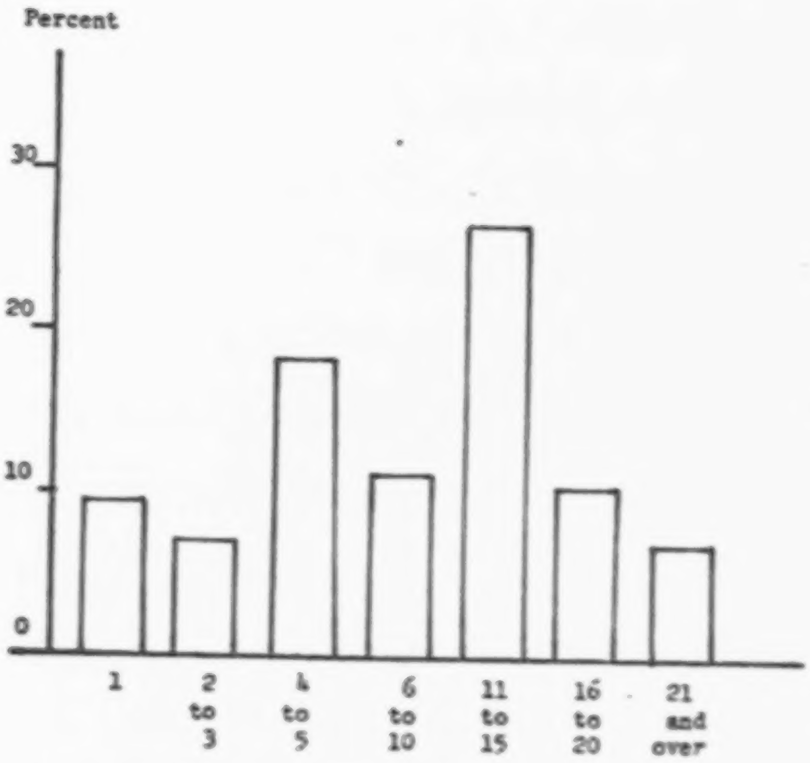


FIGURE 6 Percent of industrial arts teachers in public secondary schools by number of years teaching experience: Southern Appalachian Region, 1964-65.

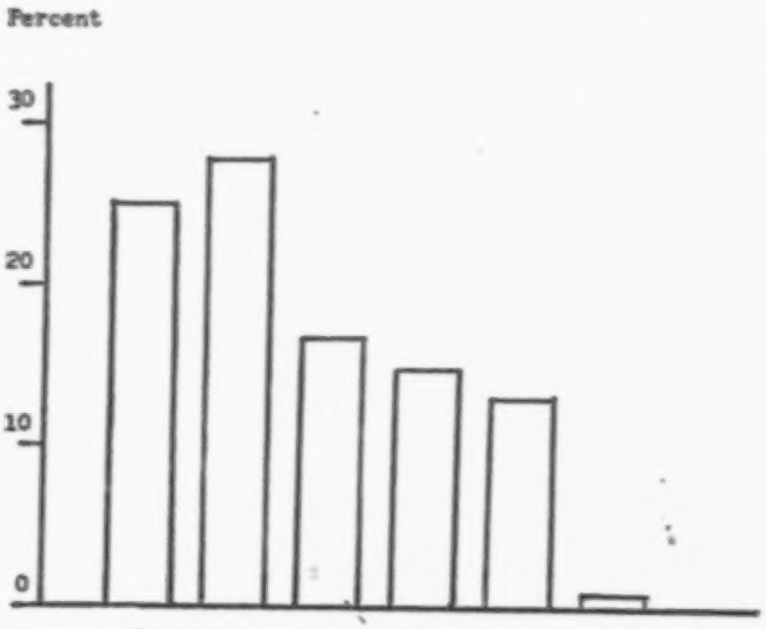


FIGURE 7 Percent of industrial arts teachers in public secondary schools by age: Southern Appalachian Region, 1964-65.

industrial arts clubs, 23.4 percent sponsored other school clubs, 21.5 percent supervised school grounds, 8.1 percent sponsored field trips, and 2.4 percent sponsored student council. Only 7.0 percent reported no other responsibilities. In general, the extra responsibilities of the region's teachers varied only slightly from those of the nation's teachers. It would appear that the use of administrative aids for most of the non-teaching jobs is not only advisable but would be more economical. This would free the teacher for professional duties.

In the region 63.7 percent of the industrial arts teachers taught industrial arts classes only. This differed from the national figure by less than 1.0 percent. Additional information concerning other subjects taught by industrial arts teachers is contained in Table XXVI.

Students' Ability as Rated by the Teacher

Study of Table XXVII shows that 65.6 percent of the industrial arts students in the region were rated by their teachers as being average. Nine percent were rated above average and 25.4 percent were considered below average. This should have some implication for industrial arts teacher training institutions.

More twelfth grade students (19.7 percent) were rated above average than in any other grade. Grade nine included the highest number (31.8 percent) of below average students. Seventh and eighth grades were highest (about 75 percent) in average students.

The total number of average students (65.6 percent) enrolled in industrial arts classes approximates a normal distribution, however, almost three times as many below average as above average students were enrolled in industrial arts. The principals' belief that industrial arts should serve a vocational purpose (Table A, Number 3) and the fact that students who have difficulty achieving in academic courses may seek courses in which physical activities offer more opportunity for self-expression suggest two possible reasons for this distribution.

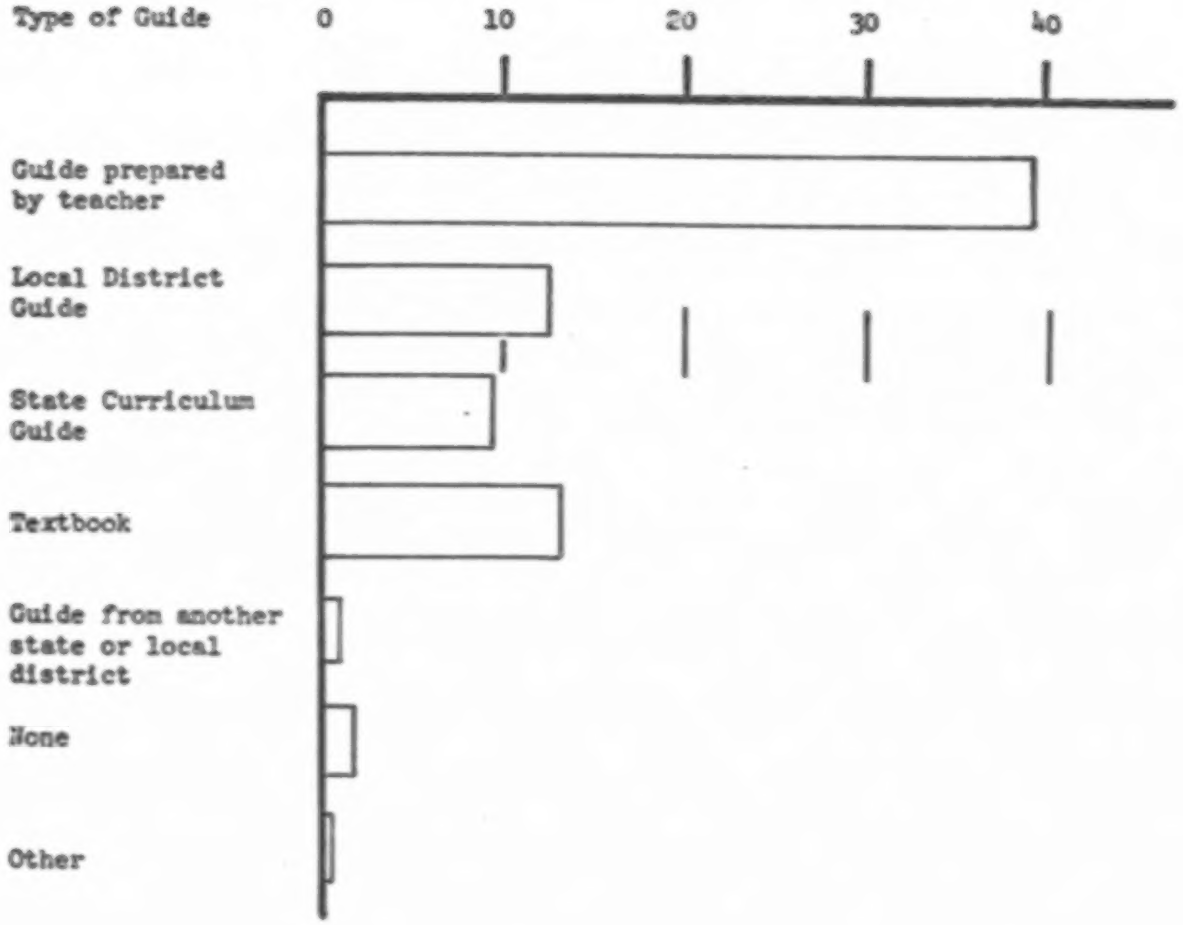
Comparing these data to national data, according to teachers' ratings, the nation had 1.0 percent more above average, 7.7 percent fewer than average, and 6.5 percent more below average students taking industrial arts.

Types of Curriculum Guides Used

Figure 8 indicates that almost two-fifths (38.8 percent) of the teachers in the region prepared their own teaching guide. Other types of curriculum guides used were: textbooks, 13.2 percent; local district guides, 12.4 percent; and guides prepared by the state, 8.6 percent. About 2.0 percent of the teachers reported that they did not use a guide and another 2.0 percent used some other guide. This implies a need for more specialists in industrial arts at the district level. Teachers have need for consultation.

The above figures include only those teachers who use a single guide. About 23.0 percent of the teachers used two or more of the curricular guides in combination. Table XXVIII gives more detailed information about the guides used by teachers.

Guides prepared by the teacher were used by 6.0 percent more of the region's teachers than by the nation's teachers. The nation's teachers used 8.0 percent more local district curriculum guides.



Note: Table reports only those curriculum guides used alone, not in combination; therefore, percentages do not total one hundred.

FIGURE 8 Percent of industrial arts teachers in public secondary schools using various types of curriculum guides to determine instructional content: Southern Appalachian Region, 1964-65.

Teaching Methods

Teachers of certain selected courses were asked to indicate the method most often used to start a beginning class in the subject. These data are recorded in Tables XXIX through XXXIV and are illustrated in Figure 9. The methods used were:

1. Assign one project to the whole class.
2. Divide the class into groups and assign different projects to each group.
3. Students select a beginning project from a limited selection.
4. Allow free selection of projects.
5. Assign students a series of sequential jobs or activities.
6. Other methods.

The methods most often used to start classes in general industrial arts were methods 1 and 3 (about 28 percent each). Other methods used for starting these classes were 2 and 4 (about 10.0 percent each.

Classes in general woods were started most often by method 3 (28.3 percent), method 4 (23.4 percent), and method 1 (21.0 percent). The methods most frequently used to start classes in general metals were method 3 (39.5 percent), method 1 (17.1 percent), and methods 2 and 4 (about 14 percent each).

Graphic arts classes were started most often by method 5 (28.9 percent), method 4 (26.6 percent), and method 1 (24.4 percent). Electricity/electronics classes were started most often by method 5 (27.8 percent), method 3 (17.7 percent), and method 1 (16.1 percent). In starting power mechanics classes, methods most often used were method 5 (22.5 percent), and method 4 (20.0 percent).

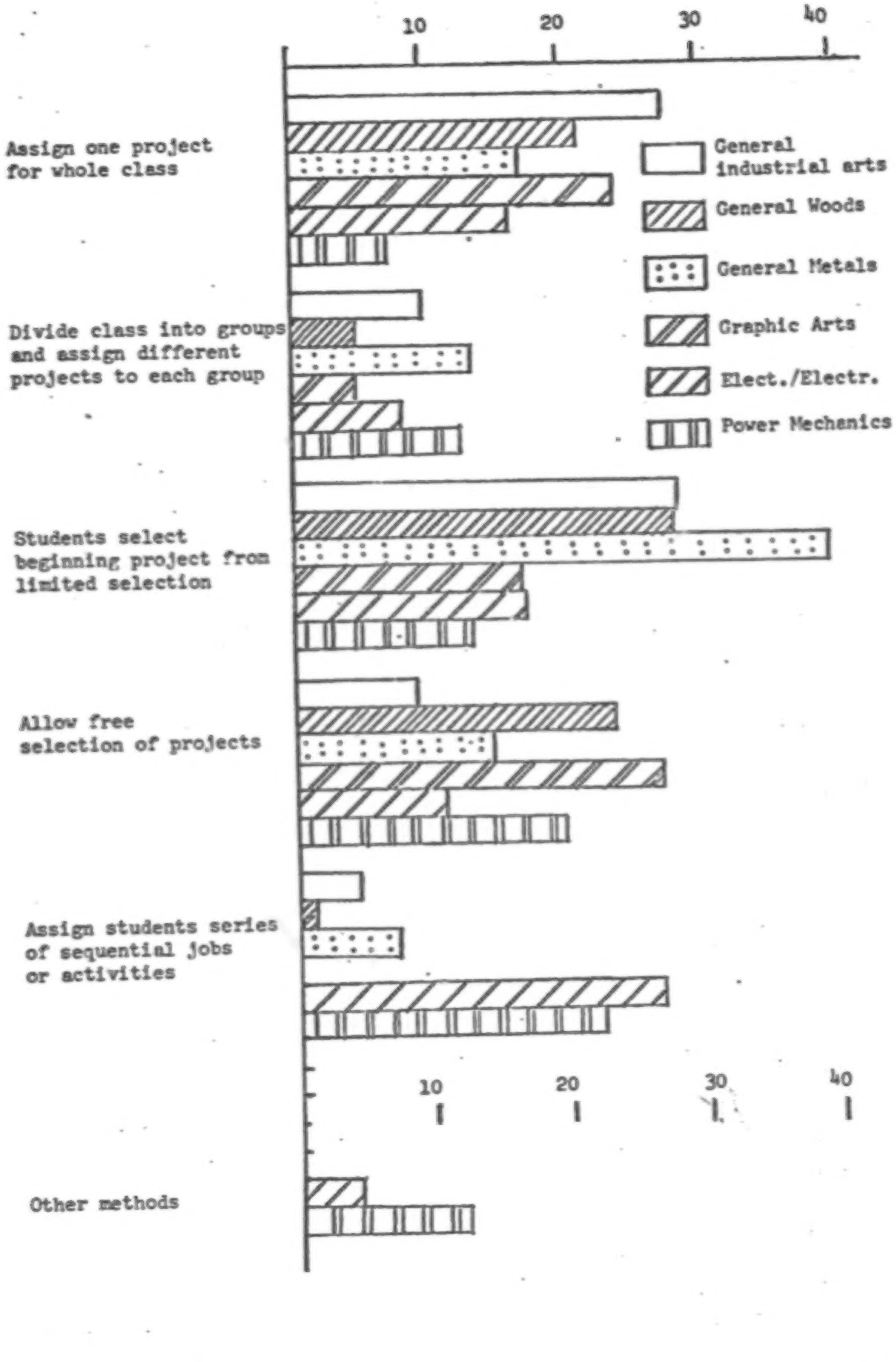


FIGURE 9 Percent of industrial arts teachers in public secondary schools using certain methods most often to initiate instruction in selected courses: Southern Appalachian Region, 1964-65.

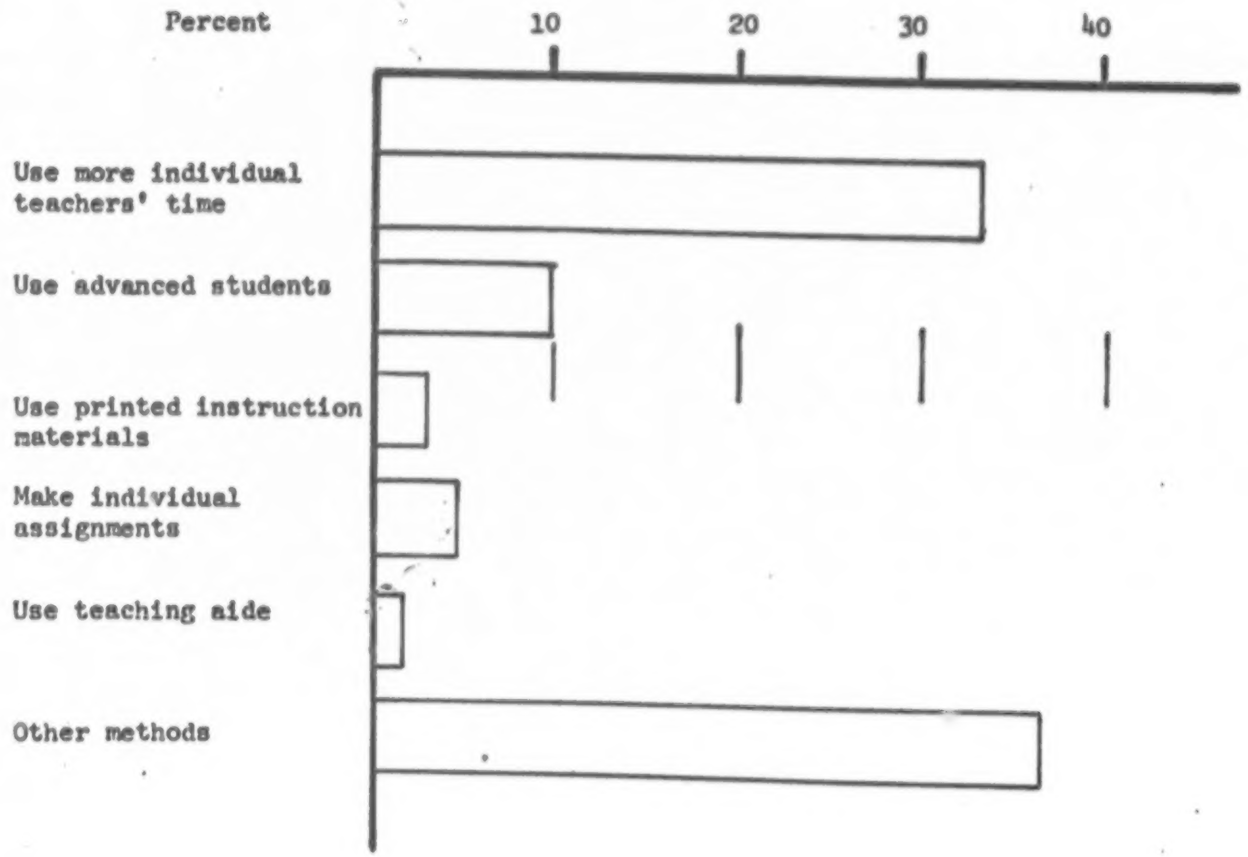
Electricity/electronics, power mechanics, and graphic arts were the only classes started most often by method 5. This method of starting a class adapts to classes organized to progress from simple to complex learning.

Method 2 was used least by all teachers, and method 5 was seldom used by teachers of classes in general industrial arts, general woods, general metals, and graphic arts. Methods 1, 3, and 4 were used in all classes about equally.

Nationally, teachers used methods 1, 3, and 5 most often to start classes. While method 5 was used most frequently to start classes in electricity/electronics, power mechanics, and graphic arts in both the region and the nation, the nation's teachers used method 5 almost twice as often as those in the region.

Students who have had no industrial arts are often assigned to an advanced industrial arts class. Table XXXV gives details of the methods used by teachers with these students. Figure 10 shows the extent to which each method was used. The percent of teachers using a single method, by the method used, was as follows: (1) use more individual teacher's time (33.2 percent), (2) use advanced student as teacher's assistant (8.9 percent), (3) use printed instructional material (3.0 percent), (4) make individual textbook assignments (4.3 percent), (5) use adult teaching assistant (1.4 percent), (6) use other methods (34.1 percent).

In the nation, 20.3 percent more of the teachers reported using the first method with beginning students in advanced classes. Thirty-three percent fewer teachers reported using number 6 (other methods) with these students.



Note: Table reports only those teaching methods used alone, not in combination; therefore, percentages do not total one hundred.

FIGURE 10 Percent of industrial arts teacher in public secondary schools by teaching method used most often with students who have had no industrial arts but are scheduled for 2nd and 3rd-year classes: Southern Appalachian Region, 1964-65.

Industrial Arts Supplies

Teachers reported on four methods for providing laboratory supplies for students: (1) supplies were furnished free of charge to students by 4.6 percent of the schools, (2) in 36.9 percent of the schools students paid for what they used, (3) a minimum fee was charged all students by 21.3 percent of the schools, and (4) in 32.1 percent of the schools the school provided some supplies free, and students paid for additional supplies. Table XXXVI gives more details on methods used to furnish supplies. Many industrial arts teachers in the region supplement the students' supplies by collecting waste materials from industries.

Approximately 95 percent of the students in the region paid for supplies, although the methods of collection differed. Almost two and one half times as many students in the nation as in the region (11.1 percent compared to 4.6 percent) received industrial arts supplies free of charge. Nearly twice as many students in the region were charged a minimum fee for supplies as in the nation (21.3 percent compared to 11.1 percent).

Changes in Industrial Arts Courses

Table XXXVII reveals that 38.3 percent of the teachers in the region made significant changes in industrial arts courses in the year 1964-65. New courses were offered for higher ability students by 7.5 percent of the teachers, general courses by 6.2 percent of the teachers, and courses for slow learners by 1.6 percent of the teachers.

Industrial arts was related to or integrated with homemaking by 1.6 percent of the teachers, art by 3.0 percent, and science by 4.6

percent. Major revisions in instructional areas were reported by 10.0 percent of the teachers, and 3.2 percent conducted work experience programs.

In comparing these changes in industrial arts courses in the region with the changes in the national programs, it may be noted that while the percentage of teachers reporting changes is the same, the teachers in the nation's schools reported 10.0 percent more changes in the same courses than were reported by teachers in the region.

The nation's teachers made more changes in new courses for higher ability students (1.9 percent more); integrating industrial arts with science (3.5 percent more); and made major revisions, including new instructional areas (4.8 percent more).

Teaching Problems

Table XXXVIII records the response of teachers to twenty selected teaching problems which they rated according to their degree of difficulty. Three problems were rated above average in difficulty. They were:

1. Arranging and conducting field trip.
2. Finding adequate preparation time for experiments and demonstrations.
3. Keeping up with advances in technology.

Five problems were rated of medium difficulty. They were:

1. Keeping equipment in good repair.
2. Securing an efficient textbook.
3. Providing career guidance materials in industry.
4. Getting improved library facilities.
5. Acquiring and teaching new and modern concepts of industry.

Teaching problems were rated by the nation's teachers and the region's teachers in about the same order. The important difference was that teachers of the region ranked the first eight problems as of medium or above in degree of difficulty, while the nation's teachers rated problems 1 and 3 with a medium degree of difficulty and all others lower.

CHAPTER IV

INDUSTRIAL ARTS COURSES AND ENROLLMENT

History does not record the beginning of industrial arts education. Records of this curriculum area indicate that no formal set of guidelines were available for teaching practices, selecting course content, or scheduling patterns. These and other important elements of industrial arts education in the Southern Appalachian Region are examined for the first time in this chapter.

Course Classification

The 1,850 industrial arts classes which were being taught in the public secondary schools of the region were placed in nine classifications (Table XXXIX). A number of courses which were sub-titles of major courses were submitted by the respondents. These were merged with the major courses. The nine classifications ranked according to enrollment from highest to lowest were: (1) general industrial arts, (2) drafting, (3) general woods, (4) general metals, (5) crafts, (6) graphic arts, (7) electricity/electronics, (8) power mechanics, and (9) other.

Schmitt reported sixteen major classifications in his national study. The first eight were the eight reported in the region. Other courses reported in the national study were: home mechanics, photography, ceramics, industrial arts mathematics and science, plastics, textiles, and transportation. These courses occurred so infrequently in the region that they were merged with related courses.

Number of Classes

Table XLII records that three classifications included 85.9 percent of the classes. They were general industrial arts (40.5 percent), drafting (25.5 percent), and general woods (19.9 percent). Classes in general metals, graphic arts, electricity/electronics, and power mechanics represent three major industrial groups, namely, metals industry, communication, and transportation; yet, these classes were few in number compared to the importance of the industries.

Table XXXIX reports the number of weeks classes were in session. Most classes were of 36 weeks duration. General metals deviated from this pattern with 28.4 weeks for the average class. About 84 percent of all the classes were held for 36 or more weeks, 10.4 percent for 18-35 weeks, and 5.5 percent for 17 weeks or less. Classes in the region were taught an average of 4.2 weeks longer than classes in the nation's schools.

Theoretical and Laboratory Instruction

Class time for the industrial arts student was usually divided into theoretical (related) and laboratory (experimental and developmental) instruction. Generally, the laboratory consumed 70-80 percent of the instruction time, with 20-30 percent of the instruction time spent in theoretical instruction. (See Table XL) Some courses varied from this pattern. For example, electricity/electronics and power mechanics averaged about 55 percent of the time spent in laboratory work. About the same results were obtained in the national survey as in the region.

Scheduling of Courses

Table XLI shows that of the 1,850 classes, most were taught one period per day (94.3 percent), five days per week (86.6 percent), and 36 weeks or more (84.1 percent). General metals varied from this pattern with about 30 percent of the classes being held for two days per week and for less than 18 weeks. About 15 percent of the general metals classes were held three days per week, and 56.7 percent were held five days a week. Two-thirds of the crafts classes were held 36 or more weeks; graphic arts, 38 weeks; power mechanics, 36 weeks; and others, 38 weeks.

Enrollments

In the region, 32,879 students were enrolled in industrial arts courses. The largest enrollments by grade were in the eighth grade (19.0 percent) and ninth grade (21.0 percent).

Table XLIII shows that 98.8 percent of the students were boys and 1.2 percent were girls. Of the 382 girls enrolled, 162 (42.4 percent) were in the twelfth grade.

The majority of the students were enrolled in three courses: general industrial arts, drafting, and general woods. Table XLIV gives the number of students enrolled in each of the course classifications.

In the nation as in the region, the largest percentage of students were enrolled in the eighth and ninth grades. Four courses, general industrial arts, general woods, drafting, and general metals, enrolled the major proportion of all students. The percentage of girls enrolled in the nation's industrial arts courses was about the same as in the region; however, the largest number of the nation's girls were in the seventh grade.

Course Content

Table XXXIX shows the number and percent of industrial arts courses by size and type of school, and Table XLV gives detailed information about areas of instruction included in these courses. Figure 11 illustrates the percentage of each instructional area included in the various courses.

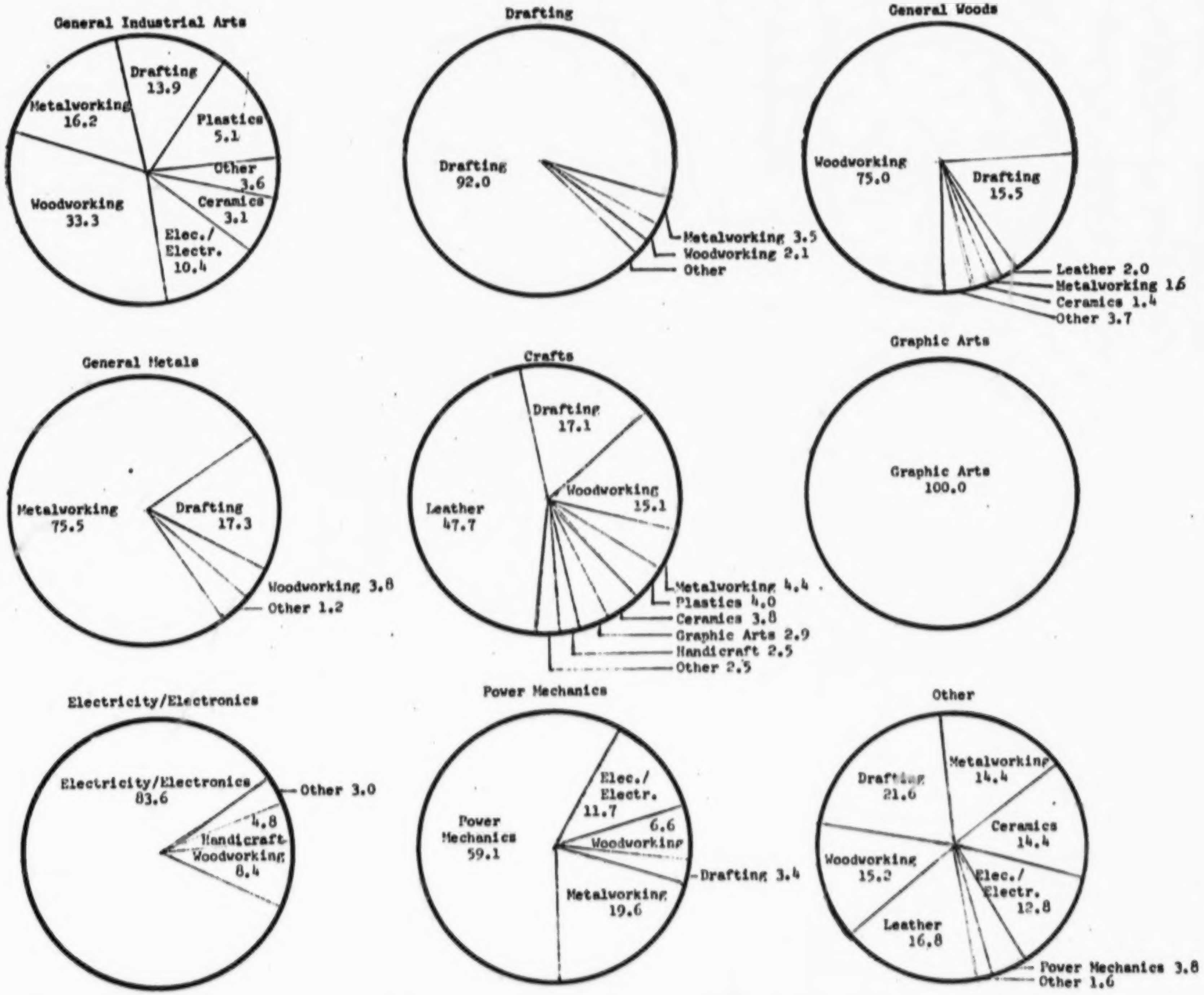


FIGURE 11 Subject areas taught in each of the 12 classifications of industrial arts courses: Southern Appalachian Region, 1964-65.

In industrial arts education, the course title indicates the major area of instruction in the course. However, instruction is not limited to the specific area indicated by the course title. The course general woods, for example, included instruction in all of the other subject areas. This indicates that industrial arts students have an opportunity to explore and develop in instructional areas not revealed by the course title.

General industrial arts: Two-fifths (40.5 percent) of the 1,850 classes in industrial arts taught in the region were in general industrial arts. Woodworking represented one-third of the course content. Other subject areas by the percentage reported were: metalworking, 16.2 percent; drafting 13.9 percent; leather, 12.1 percent; electricity/electronics; 10.4 percent; plastics, 5.1 percent; ceramics, 3.1 percent; and other, 3.6 percent.

Drafting: One-fourth (25.5 percent) of the classes offered were in drafting. The subject area of drafting comprised 92.0 percent of this course. Other subject areas included were: metalworking, 3.5 percent; woodworking, 2.1 percent; and other, 2.0 percent.

General woods: One fifth (19.9 percent) of the courses offered were in woodworking. Seventy-five percent of the course content was in the subject area of woodworking. Other subject areas were as follows: drafting, 15.5 percent; leather 2.0 percent; and other areas, less than 2.0 percent each.

General metals: Metalworking classes accounted for only 4.4 percent of the total industrial arts class offerings. Course content was divided as follows: metalworking, 77.5 percent; drafting, 17.3 percent; woodworking, 3.8 percent; and other, 1.2 percent.

Crafts: Less than three percent (2.9) of the classes taught were in crafts; however, handicraft, leather, and ceramics content appeared in other courses. Craft instruction was 47.7 percent leather, 17.1 percent drafting, 15.1 percent woodworking, 4.4 percent metalworking, 4.0 percent plastics, 3.8 percent ceramics, 2.9 percent graphic arts, 2.5 percent handicraft, and 2.5 percent other.

Graphic arts: About 2.1 percent of the total number of classes were in graphic arts. This was the only subject offered which did not have instructional content from other subject areas.

Electricity/electronics: Electricity/electronics made up 1.9 percent of the total number of classes. The major part (83.6 percent) of the course content was in that subject area. Woodworking made up 8.4 percent; handicrafts, 4.8 percent; and other, 3.0 percent.

Power mechanics: One and six-tenths percent of the classes were in power mechanics. Most of the content (59.1 percent) was within that subject area of instruction. This included 44.2 percent auto mechanics. Other subject areas included were: metalworking, 19.6 percent; electricity/electronics, 11.7 percent; woodworking, 6.6 percent; and drafting, 3.4 percent.

Other: Less than one percent (0.7) of the courses offered in industrial arts in the region were in courses other than the eight courses listed above. Subject areas included in these courses were: drafting, 21.6 percent; leather, 16.8 percent; woodworking, 15.2 percent; metalworking, 14.4 percent; ceramics, 14.4 percent; electricity/electronics, 12.8 percent; power mechanics, 3.8 percent; and other, 1.6 percent.

Schmitt's study indicated that three subject areas, woodworking, drafting, and metalworking, predominated instruction in the industrial arts courses in the nation's schools. The same condition existed in the region, with woodworking and drafting predominating. This indicates that the areas of study in industrial arts have not kept pace with advances in industries. Modern concepts of industry are not reflected in the industrial arts curriculum.

CHAPTER V

SUMMARY AND IMPLICATIONS

This survey of industrial arts education in the Southern Appalachian Region presents data not previously available concerning industrial arts programs, the teachers, and the students. Some major points of interest in the findings are:

* Less than one half (48.1 percent) of the schools in the region had industrial arts programs, while almost 74.0 percent of the nation's schools had programs.

* A greater proportion of the larger schools had programs. As the enrollment size of the schools decreased, the percent of programs also decreased.

* Industrial arts teachers of the region ranked the following four purposes of industrial arts education as the most important:

1. To develop in each student a measure of skill in the use of common tools.
2. To discover and to develop creative technical talent in students.
3. To develop problem-solving skills relating to materials and processes.
4. To develop an understanding of our technical culture.

Principals ranked purposes 1 and 2 in the same order. Numbers 3 and 4 were ranked as 4 and 5. The following was ranked as the third purpose: To provide vocational training for those students who would not otherwise have this training. The nation's principals ranked as the third purpose: To develop worthy leisure-time interests.

The purposes, as ranked by the nation's teachers, generally agreed with the ranking by the teachers in the region. Since the teachers did not consider either the vocational purpose or the leisure interest purpose very important, it is difficult to understand the high ranking of the purpose to develop skill with tools and machines unless this objective is used as a tool in achieving the remaining objective.

* Required industrial arts programs in "feeder" elementary schools were minimal.

* The number of girls taking industrial arts courses was negligible (1.2 percent of the total). Since the number of women employed in industry has increased, one might anticipate more interest by girls in industrial subjects.

* The number of schools making industrial arts compulsory increased at all grade levels during the period 1954-55 to 1962-63. The increase was greatest in grade 8 (6.6 percent) and least in grade 12 (0.7 percent). Overall increase was greatest in the latter four years.

* Science credit was allowed for industrial arts courses in 5.8 percent of the schools. This was 1.8 percent more than on the national level. More junior high schools (about 9.0 percent) and junior-senior high schools (about 8.0 percent) allowed substitution of industrial arts for science than did other types of schools.

* In 1964-65, principals reported 403 industrial arts teachers in 277 schools, an average of 1.4 teachers per school. The national average was 2.2 teachers per school. Although the larger schools had a higher ratio of programs, the number of teachers per school did not increase in proportion to the enrollment.

* Degrees were held by 94.0 percent of the teachers; 65.8 percent had bachelor's degrees and 28.3 percent had master's degrees. The region's teachers held an average of 5.3 percent more bachelor's degrees and 6.6 percent fewer master's degrees than the nation's teachers.

* Two fifths of the teachers had 30 or less semester hours in technical courses. About the same number had 40 or more semester hours in technical courses.

* The average annual gross nine or ten months' salary for teachers in the region was $5,161, which is $1,050 less than the national average. Salary differential is one of the major causes for teachers leaving the region.

* Eleven percent of the teachers supplemented their income with a second teaching job for which they received an average of $659 annually. Non-teaching jobs were held by 51.2 percent, with an average of $903 additional income. The nation's teachers averaged $640 for second teaching jobs and $1,064 for non-teaching jobs. It seems that teachers who remain loyal to the region's schools are unable to support themselves on their teaching salary.

* In 1964-65, average expenditures for equipment per school were $574. The nation's schools averaged $1,000 each. For supplies, the region's schools spent an average of $592 and the nation's schools averaged $1,200 each. Many teachers salvage industrial waste to supplement their students' supplies.

* Approximately 95.0 percent of the students in the region paid for supplies, although different methods of collection were used.

* In the year 1964-65, 38.3 percent of the teachers in the region made significant changes in industrial arts courses.

* Two-fifths of the teachers in the region prepared their own teaching guide.

* General industrial arts, drafting, and general woods accounted for 85.9 percent of the industrial arts courses taught.

* In the region, 32,879 students were enrolled in industrial arts courses. Forty percent were eighth and ninth graders.

* According to teachers' ratings, 65.6 percent of the industrial arts students in the region were average students, 9.0 percent were above average, and 25.4 percent were below average. Teacher educators should take note of the ability level of the student to be taught.

* Teachers in the region had an average of 9.6 years teaching experience.

Current industrial arts programs reflect a need for professional planning and co-ordination. Course content often appeared to be based on the development of handicraft skills. New courses and additions to present instruction with emphasis on industrial concepts and practices are needed.

Schmitt stated that industrial arts education described in his national survey did not measure up to the recommendations of 10 to 20 years earlier. Industrial arts programs in the region were behind the national average in areas such as number of programs, courses offered, number of teachers, expenditures for equipment and supplies, and teachers' salaries.

The basic purposes of industrial arts must be communicated to contemporary professional educators as well as to the general public. A concentration of resources is needed to determine a procedure for solving the problems related to industrial arts education in Appalachia. Solutions to the problems should follow with dispatch to aid citizens of the region in becoming informed consumers and capable producers of material wealth.

* Some other observations and implications are:

1. While teachers were sincere in responding that they held a first class certificate, almost one-fifth of the teachers observed on the follow-up were teaching out of their field of certification.
2. Many of the laboratories were in a poor condition and ill equipped.
3. Professional assistance was generally not available to the teacher.
4. Students, in some cases, spend too much time hand shaping materials, and not enough time assemilating the concepts involved.
5. Instructional materials were not adequate in most programs.
6. Articulation from one level of instruction to the next higher level is usually not well organized or easily identified.
7. In general, teachers of industrial arts have not been able to communicate the ideals of industrial arts education to other professional teachers.
8. The narrowness of industrial arts programs which exist as well as the need for additional programs reflect the poverty of the region.
9. Teachers need assistance for advancedstudies and for updating their training. This may be a factor in students, failing to elect teaching as a profession.

10. Aid for advanced degrees should not be limited to a few of the better prepared teachers. Teachers who were less successful in college may need more aid and training than teachers who were more successful in college.

11. More funds are needed for teachers' salaries, professional assistance, laboratories, equipment, and supplies.

* Some research needs are:

1. Determine the value of industrial arts in general education.

2. Determine course content and methods of instruction for the slow, average, and above average student.

3. Explore the value of industrial arts education in career guidance.

4. Find to what extent industrial arts education is able to develop safe attitudes related to tools, materials, and hazardous conditions.

5. Determine the types of laboratories most suited to industrial arts instruction.

6. There is a shortage of industrial arts teachers. Many leave the profession for positions in industry. How critical is this situation and what could be done to overcome the problem.

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APPENDIX A

BASIC TABLES

TABLE I Number and percent of public secondary schools with industrial arts programs responding to questionnaire Part I by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total schools responding	Junior-senior high school[1]		Junior high school[2]		Traditional high school[3]		Senior high school[4]	
	2	3		4		5		6	
		No.	%	No.	%	No.	%	No.	%
All schools	277	88	31.4	77	27.8	62	22.4	50	18.1
2500 and over	1	--	--	--	--	--	--	1	100.
1500 to 2499	16	4	25.0	--	--	2	12.5	10	62.5
1000 to 1499	39	11	28.2	6	15.4	9	23.1	13	33.3
750 to 999	53	13	24.5	16	30.2	15	28.3	9	17.0
500 to 749	72	25	34.7	26	37.1	13	18.1	8	11.0
400 to 499	27	4	14.8	7	25.9	10	37.0	6	22.0
300 to 399	25	10	40.0	6	24.0	7	28.0	2	8.0
200 to 299	22	13	59.2	6	27.3	3	13.7	--	--
100 to 199	17	7	41.2	6	35.3	3	17.6	1	5.9
1 to 99	5	1	20.0	4	80.0	--	--	--	--

[1] Includes 5 and 6 year high schools.
[2] Two and 3 year junior high schools.
[3] Four year high schools preceeded by 8 years of elementary school.
[4] Three and 4 year high schools preceeded by junior high school.

Note: Details may not add to totals due to rounding.

TABLE II Number and percent of public secondary schools with and without industrial arts programs by enrollment size and type of school: Southern Appalachian Region 1964-65.

Enrollment size and type	Total	Schools with industrial arts programs		Schools without industrial arts programs	
	2	3		4	
		No.	%	No.	%
All schools	848	408	48.1	440	51.9
2500 and over	1	1	100.	--	--
1500 to 2499	19	17	89.5	2	10.5
1000 to 1499	65	48	79.8	17	26.2
750 to 999	99	72	72.9	27	27.3
500 to 749	191	105	55.0	86	45.0
400 to 499	100	47	47.0	53	53.0
300 to 399	119	44	36.9	75	63.1
200 to 299	115	34	29.6	81	70.4
100 to 199	100	29	29.0	71	71.0
1 to 99	39	11	28.2	28	71.8
All schools	848	408	48.1	440	51.9
Junior-senior high school	376	126	30.9	250	69.1
Junior high school	198	116	58.6	82	41.4
Traditional high school	102	94	86.2	15	13.8
Senior high school	165	72	43.6	93	56.4

TABLE III Number and percent of principals in public secondary schools according to the degree of emphasis placed on various purposes of industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total principals in schools with industrial arts	To develop an understanding of our technical culture								To discover and develop creative technical talent							
		High 3		Medium 4		Low 5		No response 6		High 7		Medium 8		Low 9		No response 10	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	277	85	30.7	144	52.0	28	10.1	20	3.6	133	48.0	110	39.7	16	5.8	18	6.5
2500 and over	1	1	100.0	--	--	--	--	--	--	1	100.0	--	--	--	--	--	--
1500 to 2499	16	2	12.5	11	68.8	3	18.8	--	--	9	56.3	6	37.5	--	--	1	6.3
1000 to 1499	39	14	35.9	21	53.8	3	7.7	1	2.6	21	53.8	17	43.6	--	--	1	2.6
750 to 999	53	13		29	54.7	7	13.2	4	7.6	22	41.5	24	45.3	4	7.5	3	5.3
500 to 749	72	26	36.1	32	44.4	9	12.5	5	7.0	33	45.9	29	40.3	5	7.0	5	7.0
400 to 499	27	6	22.2	15	55.7	1	3.7	5	18.5	11	40.8	9	29.6	2	7.4	5	22.2
300 to 399	25	6	24.0	16	64.0	2	8.0	1	4.0	13	52.0	11	44.0	1	4.0	--	--
200 to 299	22	9	40.9	10	45.4	1	4.5	2	9.1	14	63.7	7	31.8	--	--	1	4.5
100 to 199	17	8	47.0	6	35.0	2	11.8	1	5.9	6	35.0	5	29.4	4	23.5	2	11.8
1 to 99	5	--	--	4	80.0	--	--	1	20.0	3	60.0	2	40.0	--	--	--	--
All types	277	85	30.7	144	52.0	28	10.1	20	3.6	133	48.0	110	39.7	16	5.8	18	6.5
Junior-Senior H.S.	88	25	28.4	47	55.7	8	9.1	6	6.8	51	57.9	29	32.9	4	4.5	14	4.5
Junior H.S.	77	24	31.2	32	41.6	13	16.9	18	10.4	32	41.6	32	41.6	6	7.8	7	9.1
Traditional H.S.	62	22	35.5	34	54.8	1	1.6	5	8.1	29	46.8	24	38.7	4	6.5	5	8.1
Senior H.S.	50	14	28.0	29	58.0	6	12.0	1	2.0	21	42.0	25	50.0	2	4.0	2	4.0

Note: Detail may not add to total due to rounding.

TABLE III · Number and percent of principals in public secondary schools according to the degree of emphasis placed on various purposes of industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	To develop an understanding of the application of science and mathematics								To develop a measure of skill in the use of common tools and machines							
	High		Medium		Low		No response		High		Medium		Low		No response	
	11		12		13		14		15		16		17		18	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	67	24.2	140	50.5	52	18.8	18	6.5	184	59.4	77	24.8	7	2.3	9	13.5
2500 and over	--	--	1	100.0	--	--	--	--	1	100.0	--	--	--	--	--	--
1500 to 2499	6	37.5	7	43.8	2	12.5	1	6.3	7	43.8	7	43.8	1	12.5	1	6.3
1000 to 1499	10	75.6	21	53.8	6	15.4	2	5.1	24	61.5	13	33.3	1	2.6	1	2.6
750 to 999	8	15.2	26	49.5	17	32.4	2	3.8	38	72.4	12	22.8	1	1.9	2	3.8
500 to 749	10	13.9	42	58.3	15	20.8	5	6.9	46	63.8	23	31.9	1	1.4	2	2.7
400 to 499	5	18.5	11	40.7	5	18.5	6	12.2	22	81.4	3	11.1	--	--	2	7.4
300 to 399	8	32.0	11	44.0	6	24.0	--	--	16	64.0	9	36.0	--	--	--	--
200 to 299	8	36.3	12	65.4	1	4.5	1	4.5	16	72.6	5	22.7	1	4.5	--	--
100 to 199	11	64.9	5	29.4	--	--	1	5.9	11	64.9	3	17.6	2	11.8	1	5.9
1 to 99	1	20.0	4	80.0	--	--	--	--	3	60.0	2	40.0	--	--	--	--
All types	67	24.2	140	50.5	52	18.8	18	6.5	184	59.4	77	24.8	7	2.3	9	13.5
Junior-Senior H.S.	26	29.5	44	50.0	14	15.9	4	4.5	58	65.9	27	30.7	1	1.1	2	2.2
Junior H. S.	14	18.1	37	48.1	19	24.6	7	9.1	51	66.2	22	28.6	1	1.3	3	3.9
Traditional H.S.	14	22.6	31	50.0	12	19.4	5	8.1	42	67.7	13	21.0	4	6.5	3	4.8
Senior H.S.	13	26.0	28	56.0	7	14.0	2	4.0	33	66.0	15	30.0	1	2.0	1	2.0

Note: Detail may not add to total due to rounding.

TABLE III Number and percent of principals in public secondary schools according to the degree of emphasis placed on various purposes of industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--

Enrollment size and type	To provide prevocational experience								To provide vocational training for students who would not otherwise have this opportunity							
	High 19		Medium 20		Low 21		No response 22		High 23		Medium 24		Low 25		No response 26	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	102	32.9	109	35.2	49	15.8	17	16.1	111	40.1	105	37.9	45	16.2	16	5.8
2500 and over	1	100.0	--	--	--	--	--	--	1	100.0	--	--	--	--	--	--
1500 to 2499	12	75.0	3	18.8	1	6.3	--	--	9	56.3	7	43.8	--	--	--	--
1000 to 1499	18	46.2	11	28.2	9	23.1	1	2.6	16	41.0	10	25.6	12	30.7	1	2.6
750 to 999	10	19.0	28	53.3	12	22.8	3	5.7	16	30.5	25	47.6	7	13.3	5	9.5
500 to 749	20	27.8	34	47.2	14	19.4	4	5.8	29	40.3	24	33.3	15	20.8	4	5.6
400 to 499	10	37.0	8	29.6	3	11.1	6	22.2	9	33.3	11	40.7	3	11.1	4	14.8
300 to 399	11	44.0	9	36.0	5	20.0	--	--	8	32.0	14	56.0	3	12.0	--	--
200 to 299	11	50.0	7	31.8	3	13.6	1	4.5	13	59.2	7	31.8	1	4.5	1	4.5
100 to 199	7	41.2	6	35.3	3	17.6	1	5.9	7	41.2	6	35.3	3	17.6	1	5.9
1 to 99	2	40.0	2	40.0	--	--	1	20.0	3	60.0	1	20.0	1	20.0	--	--
All types	102	32.9	109	35.2	49	15.8	17	16.1	111	40.1	105	37.9	45	16.2	16	5.8
Junior-Senior H.S.	38	43.6	35	39.8	11	12.5	4	4.5	39	44.3	39	44.3	7	8.4	3	3.4
Junior H.S.	21	27.3	33	42.9	16	20.9	7	9.1	27	35.1	27	35.1	17	22.1	6	7.8
Traditional H.S.	23	37.1	21	33.9	13	21.0	5	8.1	20	32.3	26	41.9	11	17.7	5	8.1
Senior H.S.	20	40.0	20	40.0	9	18.0	1	2.0	25	50.0	13	26.0	10	20.0	2	4.0

Note: Detail may not add to total due to rounding.

TABLE III Number and percent of principals in public secondary schools according to the degree of emphasis placed on various purposes of industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	To provide general all-around technical knowledge and skills								To develop worthy leisure-time interests							
	High 27		Medium 28		Low 29		No response 30		High 31		Medium 32		Low 33		No response 34	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	92	33.2	149	53.8	18	6.5	18	6.5	90	29.0	143	46.1	35	11.3	9	13.5
2500 and over	--	--	1	100.0	--	--	--	--	1	100.0	--	--	--	--	--	--
1500 to 2499	9	56.3	5	31.3	1	6.3	1	6.3	5	31.3	8	50.0	3	18.8	--	--
1000 to 1499	13	33.3	22	56.3	3	7.7	1	2.6	13	33.3	18	46.2	7	17.9	1	--
750 to 999	13	24.8	33	62.8	2	3.8	5	9.5	20	33.9	29	49.2	2	3.4	2	--
500 to 749	20	27.8	42	58.3	6	8.3	4	5.6	25	30.1	38	45.8	8	9.6	1	--
400 to 499	7	25.9	17	62.9	--	--	3	11.1	5	14.7	14	41.2	4	11.8	4	--
300 to 399	9	36.0	13	52.0	3	12.0	--	--	6	20.0	13	43.3	6	20.0	--	--
200 to 299	11	50.0	8	36.3	1	4.5	2	9.1	9	39.1	11	47.8	2	8.7	--	--
100 to 199	7	41.2	7	41.2	2	11.8	1	5.9	5	25.0	8	40.0	3	15.0	1	
1 to 99	3	60.0	1	20.0	--	--	1	20.0	1	20.0	4	80.0	--	--	--	--
All types	92	33.2	149	53.8	18	6.5	18	6.5	90	29.0	143	46.1	35	11.3	9	13.5
Junior-senior H.S.	25	28.4	52	59.1	7	8.4	4	4.5	18	17.8	53	52.5	15	14.9	2	14.9
Junior H.S.	28	36.4	37	48.1	6	7.8	6	7.8	31	36.5	38	44.7	5	5.9	3	12.9
Traditional H.S.	18	29.0	36	58.1	3	4.8	5	8.1	20	28.2	27	38.0	12	16.9	3	16.9
Senior H.S.	21	42.0	24	48.0	2	4.0	3	6.0	21	39.6	25	47.2	3	5.7	1	7.5

Note: Detail may not add to total due to rounding.

TABLE III Number and percent of principals in public secondary schools according to the degree of emphasis placed on various purposes of industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	To develop consumer knowledge and appreciation and use of industrial products								To develop problem-solving skills relating to materials and processes							
	High		Med.		Low		No response		High		Med.		Low		No response	
	35		36		37		38		39		40		41		42	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	74	26.7	138	49.8	43	15.5	22	7.9	97	35.0	142	51.3	21	7.8	17	6.1
2500 and over	--	--	1	100.0	--	--	--	--	--	--	--	100.0	--	--	--	--
1500 to 2499	1	6.3	11	68.8	3	18.8	1	6.3	3	18.8	8	50.0	4	25.0	1	6.3
1000 to 1499	16	41.0	15	38.5	6	15.4	2	5.1	19	48.7	17	43.6	2	5.1	1	2.6
750 to 999	12	22.8	30	57.1	7	13.3	4	7.6	13	24.8	33	62.8	3	5.7	4	7.6
500 to 749	17	23.5	37	51.2	12	16.6	6	8.3	25	34.6	38	52.6	6	8.3	3	4.2
400 to 499	6	22.2	11	40.7	4	14.8	6	22.2	6	22.2	15	55.5	1	3.7	5	18.5
300 to 399	7	28.0	12	48.0	6	24.0	--	--	10	40.0	12	48.0	3	12.0	--	--
200 to 299	5	22.7	12	54.5	4	18.2	1	4.5	12	54.5	8	36.4	1	4.5	1	4.5
100 to 199	9	52.9	6	35.3	1	5.9	1	5.9	7	41.2	8	47.0	1	5.9	1	5.9
1 to 99	1	20.0	3	60.0	--	--	1	20.0	1	20.0	3	60.0	--	--	1	20.0
All Types	74	26.7	138	49.8	43	15.5	22	7.9	97	35.0	142	51.3	21	7.8	17	6.1
Junior-senior H.S.	23	26.1	46	52.3	15	17.0	4	4.5	29	32.9	45	51.3	11	12.5	3	3.4
Junior H.S.	18	23.4	37	48.1	12	15.6	10	13.0	22	28.6	43	55.9	5	6.5	7	9.1
Traditional H.S.	17	27.4	26	41.9	13	21.0	6	9.8	24	38.7	31	50.0	2	3.2	5	8.1
Senior H.S.	16	32.0	29	58.0	3	6.0	2	4.0	22	44.0	23	46.0	3	6.0	2	4.0

Note: Detail may not add to total due to rounding.

TABLE IV Number and percent of teachers in public secondary schools according to the degree of emphasis placed on various purposes of industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment Size and Type	Total Teachers in School with Industrial Arts	To develop understanding of our technical culture								To discuss and develop creative technical talent							
		High		Med.		Low		No Resp.		High		Med.		Low		No Resp.	
		3		4		5		6		7		8		9		10	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All Sizes	371	186	50.1	157	42.3	14	3.8	14	3.8	230	62.0	117	31.5	17	4.6	7	1.9
2500 and over	5	3	60.0	1	20.0	1	20.0	0	0	3	60.0	2	40.0	0	0	0	0
1500 to 2449	39	21	53.8	16	41.0	1	2.6	1	2.6	24	61.5	13	33.3	1	2.6	1	2.6
1000 to 1449	74	42	56.8	27	36.5	1	1.4	4	5.4	52	70.3	21	28.4	1	1.4	0	0
750 to 999	72	35	48.6	33	45.8	2	2.8	2	2.8	45	62.5	22	30.6	4	5.6	1	1.4
500 to 749	84	36	42.9	38	45.2	7	8.3	3	3.6	45	53.6	34	40.5	4	4.8	1	1.2
400 to 499	29	16	55.2	11	37.9	1	3.4	1	3.4	20	69.0	6	20.7	0	0	3	10.3
300 to 399	26	11	42.3	13	50.0	0	0	2	7.7	14	53.8	8	30.8	3	11.5	1	3.8
200 to 299	22	12	54.5	10	45.5	0	0	0	0	13	59.1	6	27.3	3	13.6	0	0
100 to 199	15	9	60.0	5	33.3	1	6.7	0	0	12	80.0	3	20.0	0	0	0	0
1 to 99	5	1	20.0	3	60.0	0	0	1	20.0	2	40.0	2	40.0	1	20.0	0	0
All Types	371	186	50.1	157	42.3	14	3.8	14	3.8	230	62.0	117	31.5	17	4.6	7	1.9
Junior-Senior High	104	51	49.0	46	44.2	1	1.0	6	5.8	67	64.4	32	30.8	2	1.9	3	2.9
Junior H.S.	96	39	40.6	45	46.9	7	7.3	5	5.2	45	46.9	41	42.7	10	10.4	0	0
Traditional H.S.	90	50	55.6	36	40.0	1	1.1	3	3.3	66	73.3	18	20.0	3	3.3	3	3.3
Senior H.S.	81	46	56.8	30	37.0	5	6.2	0	0	52	64.2	26	32.1	2	2.5	1	1.2

TABLE IV Number and percent of teachers in public secondary schools according to the degree of emphasis placed on various purposes of industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment Size and Type	To develop an understanding of the application of science and mathematics								To develop a measure of skill in the use of common tools and machines							
	High		Med.		Low		No. Resp.		High		Med.		Low		No Resp.	
	11		12		13		14		15		16		17		18	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All Sizes	137	36.9	181	48.8	40	10.8	13	3.5	256	69.0	106	28.6	8	2.2	1	.3
2500 and over	2	40.0	2	40.0	1	20.0	0	0	4	80.0	1	20.0	0	0	0	0
1500 to 2449	14	35.9	20	51.3	4	10.3	1	2.6	30	76.9	7	17.9	2	5.1	0	0
1000 to 1449	24	32.4	34	45.9	13	17.6	3	4.1	53	71.6	21	28.4	0	0	0	0
750 to 999	24	33.3	42	58.3	4	5.6	2	2.8	47	65.3	23	31.9	1	1.4	1	1.4
500 to 749	29	34.5	41	48.8	10	11.9	4	4.8	50	59.5	32	38.1	2	2.4	0	0
400 to 499	9	31.0	15	51.7	3	10.3	2	6.9	23	79.3	6	20.7	0	0	0	0
300 to 399	11	42.3	11	42.3	3	11.5	1	3.8	16	61.5	8	30.8	2	7.7	0	0
200 to 299	13	59.1	7	31.8	2	9.1	0	0	18	81.8	3	13.6	1	4.5	0	0
100 to 199	8	53.3	7	46.7	0	0	0	0	12	80.0	3	20.0	0	0	0	0
1 to 99	3	60.0	2	40.0	0	0	0	0	3	60.0	2	40.0	0	0	0	0
All types	137	36.9	181	48.8	40	10.8	13	3.5	256	69.0	106	28.6	8	2.2	1	.3
Junior-Senior H.S.	42	40.4	49	47.1	9	8.7	4	3.8	73	70.2	29	27.9	1	1.0	1	1.0
Junior H.S.	34	35.4	44	45.8	13	13.5	5	5.2	59	61.5	32	33.3	5	5.2	0	0
Traditional H.S.	34	37.8	40	44.4	12	13.3	4	4.4	62	68.9	27	30.0	1	1.1	0	0
Senior H.S.	27	33.3	48	59.3	6	7.4	0	0	62	76.5	18	22.2	1	1.2	0	0

TABLE IV Number and percent of teachers in public secondary schools according to the degree of emphasis placed on various purposes of industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment Size and Type	To provide prevocational experience								To provide vocational training for students who would not otherwise have this opportunity							
	High		Med.		Low		No. Resp.		High		Med.		Low		No Resp.	
	19		20		21		22		23		24		25		26	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All Sizes	157	42.3	135	36.4	70	18.9	9	2.4	145	39.1	126	34.0	94	25.3	6	1.6
2500 and over	4	80.0	0	0	1	20.0	0	0	3	60.0	2	40.0	0	0	0	0
1500 to 2449	21	53.8	12	30.8	6	15.4	0	0	14	35.9	17	43.6	8	20.5	0	0
1000 to 1449	25	33.8	36	48.6	10	13.5	3	4.1	25	33.8	26	35.1	23	31.1	0	0
750 to 999	31	43.1	26	36.1	14	19.4	1	1.4	29	40.3	25	34.7	17	23.6	1	1.4
500 to 749	34	40.5	27	32.1	22	26.2	1	1.2	29	34.5	24	28.6	29	34.5	2	2.4
400 to 499	11	37.9	9	31.0	6	20.7	3	10.3	15	51.7	5	17.2	7	24.1	2	6.9
300 to 399	10	38.5	12	46.2	4	15.4	0	0	10	38.5	10	38.5	5	19.2	1	3.8
200 to 299	13	59.1	7	31.8	2	9.1	0	0	10	45.5	10	45.5	2	9.1	0	0
100 to 199	6	40.0	5	33.3	4	26.7	0	0	8	53.3	5	33.3	2	13.3	0	0
1 to 99	2	40.0	1	20.0	1	20.0	1	20.0	2	40.0	2	40.0	1	20.0	0	0
All Types	157	42.3	135	36.4	70	18.9	9	2.4	145	39.1	126	34.0	94	25.3	6	1.6
Junior-Senior H.S.	51	49.0	37	35.6	15	14.4	1	1.0	42	40.4	41	39.4	20	19.2	1	1.0
Junior H.S.	31	32.3	30	31.3	30	31.3	5	5.2	30	31.3	27	28.1	37	38.5	2	2.1
Traditional H.S.	33	40.7	37	45.7	11	13.6	0	0	35	43.2	26	32.1	20	24.7	0	0
Senior H.S.	42	46.7	31	34.4	14	15.6	3	3.3	38	42.2	32	35.6	17	18.9	3	3.3

TABLE IV Number and percent of teachers in public secondary schools according to the degree of emphasis placed on various purposes of industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment Size and Type	To provide general all-round technical knowledge and skills								To develop worthy leisure-time interests							
	High		Med.		Low		No Resp.		High		Med.		Low		No. Resp.	
	27		28		29		30		31		32		33		34	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All Sizes	191	51.5	149	40.2	20	5.4	11	3.0	148	39.9	159	42.9	60	16.2	4	1.1
2500 and over	3	60.0	2	40.0	0	0	0	0	2	40.0	2	40.0	1	20.0	0	0
1500 to 2449	20	51.3	15	38.5	4	10.3	0	0	12	30.8	20	51.3	7	17.9	0	0
1000 to 1449	43	58.1	28	37.8	0	0	3	4.1	29	39.2	35	47.3	9	12.2	1	1.4
750 to 999	46	63.9	24	33.3	1	1.4	1	1.4	32	44.4	31	43.1	8	11.1	1	1.4
500 to 749	38	45.2	34	40.5	10	11.9	2	2.4	41	48.8	27	32.1	15	17.9	1	1.2
400 to 499	10	34.5	15	51.7	1	3.4	3	10.3	9	31.0	14	48.3	5	17.2	1	3.4
300 to 399	6	23.1	17	65.4	2	7.7	1	3.8	7	26.9	10	38.5	9	34.6	0	0
200 to 299	14	63.6	8	36.4	0	0	0	0	9	40.9	10	45.5	3	13.6	0	0
100 to 199	10	66.7	4	26.7	1	6.7	0	0	5	33.3	8	53.3	2	13.3	0	0
1 to 99	1	20.0	2	40.0	1	20.0	1	20.0	2	40.0	2	40.0	1	20.0	0	0
All types	191	51.5	149	40.2	20	5.4	11	3.0	148	39.9	159	42.9	60	16.2	4	1.1
Junior-Senior H.S.	61	58.7	36	34.6	5	4.8	2	1.9	42	40.4	40	38.5	19	18.3	3	2.9
Junior H.S.	44	45.8	38	39.6	9	9.4	5	5.2	38	39.6	47	49.0	11	11.5	0	0
Traditional H.S.	41	50.6	37	45.7	3	3.7	0	0	35	43.2	38	46.9	8	9.9	0	0
Senior H.S.	45	50.0	38	42.2	3	3.3	4	4.4	33	36.7	34	37.8	22	24.4	1	1.1

TABLE IV Number and percent of teachers in public secondary schools according to the degree of emphasis placed on various purposes of industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment Size and Type	To develop consumer knowledge and appreciation and use of industrial products								To develop problem-solving skills relating to materials and processes							
	High		Med.		Low		No Resp.		High		Med.		Low		No Resp.	
	35		36		37		38		39		40		41		42	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All Sizes	167	45.0	155	41.8	41	11.1	8	2.2	202	54.4	141	38.0	11	3.0	17	4.6
2500 and over	2	40.0	2	40.0	1	20.0	0	0	3	60.0	2	40.0	0	0	0	0
1500 to 2449	16	41.0	17	43.6	6	15.4	0	0	17	43.6	20	51.3	2	5.1	0	.0
1000 to 1449	34	45.9	135	47.3	5	6.8	0	0	47	63.5	21	28.4	2	2.7	4	5.4
750 to 999	33	45.8	31	43.1	6	8.3	2	2.8	38	52.8	30	41.7	0	0	4	5.6
500 to 749	41	48.8	35	41.7	6	7.1	2	2.4	44	52.4	34	40.5	3	3.6	3	3.6
400 to 499	13	44.8	11	37.8	2	6.9	3	10.3	17	58.6	7	24.1	1	3.4	4	13.8
300 to 399	10	38.5	7	26.9	9	34.6	0	0	16	61.5	8	30.8	1	3.8	1	3.8
200 to 299	10	45.5	9	40.9	3	13.6	0	0	13	59.1	7	31.8	2	9.1	0	0
100 to 199	6	40.0	6	40.0	3	20.0	0	0	5	33.3	10	66.7	0	0	0	0
1 to 99	2	40.0	2	40.0	0	0	1	20.0	2	40.0	2	40.0	0	0	1	20.0
All types	167	45.0	155	41.8	41	11.1	8	2.2	202	54.4	141	38.0	11	3.0	17	4.6
Junior-Senior H.S.	54	51.9	30	28.8	17	16.3	3	2.9	54	51.9	42	40.4	4	3.8	4	3.8
Junior H.S.	33	34.4	51	53.1	11	11.5	1	1.0	51	53.1	33	34.4	4	4.2	8	8.3
Traditional H.S.	41	45.6	37	41.1	9	10.0	3	3.3	58	64.4	27	30.0	2	2.2	3	3.3
Senior H.S.	39	48.1	37	45.7	4	4.9	1	1.2	39	48.1	39	48.1	1	1.2	2	2.5

Note: Detail may not add to total because of rounding

TABLE V Mean degree of emphasis placed by principals of public secondary schools on various purposes for teaching industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Purpose and mean degree of emphasis[1]									
	To develop an understanding of our technical culture	To discover and to develop creative technical talents	To develop an understanding of the application of science and mathematics	To develop a measure of skill in the use of common tools and machines	To provide prevocational experience	To provide vocational training for students who would not otherwise have this opportunity	To provide general all-around technical knowledge and skill	To provide worthy leisure-time interests	To develop consumer knowledge and appreciation and use of industrial products	To develop problem-solving skills relating to materials and processes
	2	3	4	5	6	7	8	9	10	11
All sizes	2.3	2.6	2.1	2.7	2.3	2.4	2.3	2.1	2.2	2.3
2500 and over	3.0	3.0	2.0	3.0	3.0	3.0	2.0	2.0	2.0	3.0
1500 to 2499	1.9	2.6	2.3	2.7	2.6	2.5	2.3	2.1	1.9	2.0
1000 to 1499	2.3	2.6	2.1	2.6	2.3	2.1	2.3	2.2	2.3	2.5
750 to 999	2.1	2.4	2.1	2.7	2.0	2.2	2.2	2.3	2.1	2.2
500 to 749	2.3	2.3	2.0	2.6	2.1	2.2	2.2	1.9	2.1	1.9
400 to 499	2.2	2.4	2.0	2.8	2.3	2.3	2.3	2.0	2.1	2.1
300 to 399	2.1	2.6	2.1	2.6	2.2	2.5	2.2	2.0	2.0	2.3
200 to 299	2.4	2.8	2.3	2.7	2.4	2.6	2.5	2.4	2.3	2.5
100 to 199	2.4	2.5	2.1	2.7	2.4	2.5	2.4	2.1	2.5	2.5
1 to 99	2.0	2.6	2.2	2.6	2.0	2.4	2.2	2.2	2.3	2.3

[1] KEY: 3 = high degree of emphasis; 2 = medium degree; and 1 = low degree.

TABLE V Mean degree of emphasis placed by principals of public secondary schools on various purposes for teaching industrial arts, by enrollment size and type of schools: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Purpose and mean degree of emphasis[1]									
	To develop an understanding of our technical culture	To discover and to develop creative technical talents	To develop an understanding of the application of science and mathematics	To develop a measure of skill in the use of common tools and machines	To provide prevocational experience	To provide vocational training for students who would not otherwise have this opportunity	To provide general all-around technical knowledge and skill	To provide worthy leisure-time interests	To develop consumer knowledge and appreciation and use of industrial products	To develop problem-solving skills relating to materials and processes
	2	3	4	5	6	7	8	9	10	11
All Types	2.5	2.6	2.3	2.7	2.3	2.2	2.4	2.2	2.3	2.5
Junior-Senior H.S.	2.2	1.9	2.2	2.8	2.2	2.4	2.2	2.0	2.1	2.2
Junior H.S.	2.2	2.4	1.9	2.7	2.1	2.1	2.3	2.3	2.1	2.2
Traditional H.S.	2.2	2.4	2.1	2.7	2.2	2.3	2.4	2.4	2.1	2.4
Senior H.S.	2.4	2.4	2.0	2.6	2.1	2.1	2.3	2.1	2.3	2.4

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[1] KEY: 3 = high degree of emphasis; 2 = medium degree; and 1 = low degree.

TABLE VI Mean degree of emphasis placed by industrial arts teachers in public secondary schools on various purposes for teaching industrial arts, by enrollment size and type of school : Southern Appalachian Region, 1964-65.

Enrollment size and type	Purpose and mean degree of emphasis[1]									
	To develop an understanding of our technical culture	To discover and to develop creative technical talents	To develop an understanding of the application of science and mathematics	To develop a measure of skill in the use of common tools and machines	To provide prevocational experience	To provide vocational training for students who would not otherwise have this opportunity	To provide general all-around technical knowledge and skill	To provide worthy leisure-time interests	To develop consumer knowledge and appreciation and use of industrial products	To develop problem-solving skills relating to materials and processes
	2	3	4	5	6	7	8	9	10	11
All sizes	2.5	2.6	2.3	2.7	2.3	2.2	2.4	2.2	2.3	2.5
2500 and over	2.5	2.6	2.2	2.8	2.6	2.6	2.6	2.2	2.2	2.6
1500 to 2499	2.5	2.6	2.3	2.7	2.4	2.1	2.4	2.1	2.3	2.4
1000 to 1499	2.6	2.7	2.2	2.7	2.2	2.0	2.6	2.3	2.4	2.6
750 to 999	2.5	2.6	2.3	2.6	2.2	2.2	2.6	2.3	2.4	2.6
500 to 749	2.4	2.5	2.2	2.6	2.1	2.0	2.3	2.3	2.4	2.5
400 to 499	2.5	2.8	2.2	2.8	2.2	2.3	2.3	2.1	2.4	2.6
300 to 399	2.5	2.3	2.3	2.5	2.2	2.2	2.2	1.9	2.0	2.6
200 to 299	2.5	2.5	2.5	2.8	2.5	2.4	2.6	2.3	2.3	2.5
100 to 199	2.5	2.8	2.5	2.8	2.1	2.4	2.6	2.2	2.2	2.3
1 to 99	2.3	2.2	2.2	2.2	2.3	2.2	2.0	2.2	2.3	2.3

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[1] KEY: 3 = high degree of emphasis; 2 = medium degree; 1 = low degree.

TABLE VI Mean degree of emphasis placed by industrial arts teachers in public secondary schools on various purposes for teaching industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Purpose and mean degree of emphasis[1]									
	To develop an understanding of our technical culture	To discover and to develop creative technical talents	To develop an understanding of the application of science and mathematics	To develop a measure of skill in the use of common tools and machines	To provide prevocational experience	To provide vocational training for students who would not otherwise have this opportunity	To provide general all-around technical knowledge and skill	To provide worthy leisure-time interests	To develop consumer knowledge and appreciation and use of industrial products	To develop problem-solving skills relating to materials and processes
	2	3	4	5	6	7	8	9	10	11
All types	2.5	2.6	2.3	2.7	2.3	2.2	2.4	2.2	2.3	2.5
Junior-Senior H.S.	2.5	2.6	2.3	2.7	2.3	2.2	2.5	2.2	2.4	2.5
Junior H.S.	2.4	2.4	2.2	2.6	2.0	1.9	2.4	2.3	2.2	2.5
Traditional H.S.	2.5	2.6	2.3	2.8	2.2	2.2	2.5	2.3	2.4	2.5
Senior H.S.	2.6	2.7	2.3	2.7	2.3	2.2	2.5	2.1	2.4	2.6

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[1] KEY: 3 = high degree of emphasis; 2 = medium degree; 1 = low degree.

TABLE VII Number and percent of public secondary schools according to extent industrial arts is required in feeder elementary schools, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total number of secondary schools with industrial arts program.	Required in all elementary schools.		Required in some elementary schools.		Not required in any elementary schools but some have it.		Not required in any elementary schools and none have it.		Not applicable. The school receives its students from non-elementary schools.		Don't know		Other		No Response	
	2	3		4		5		6		7		8		9		10	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	277	3	1.1	4	1.5	16	5.8	213	76.9	26	9.4	3	1.1	6	2.2	6	2.2
2500 and over	1	--	--	--	--	--	--	--	--	1	100.	--	--	--	--	--	--
1500 to 2499	16	1	6.3	1	6.3	1	6.3	6	37.5	6	37.5	1	6.3	--	--	--	--
1000 to 1499	39	--	--	1	2.6	3	7.7	28	71.8	5	12.8	--	--	1	2.6	1	2.6
750 to 999	53	1	1.9	1	1.9	5	9.5	42	80.0	4	7.6	--	--	--	--	--	--
500 to 749	72	1	1.4	1	1.4	3	4.2	60	83.9	6	8.4	--	--	1	1.4	--	--
400 to 499	27	--	--	--	--	--	--	21	77.7	1	3.7	1	3.7	--	--	4	14.8
300 to 399	25	--	--	--	--	2	8.0	21	84.0	--	--	--	--	2	8.0	--	--
200 to 299	22	--	--	--	--	1	4.5	18	81.0	1	4.5	1	4.5	1	4.5	--	--
100 to 199	17	--	--	--	--	--	--	14	82.3	1	5.9	--	--	1	5.9	1	5.9
1 to 99	5	--	--	--	--	1	20.0	3	60.0	1	20.0	--	--	--	--	--	--
All types	277	3	1.1	4	1.5	16	5.8	213	76.9	26	9.4	3	1.1	6	2.2	6	2.2
Junior-senior H.S.	88	1	1.1	--	--	5	5.7	71	80.7	5	5.7	--	--	4	4.5	2	2.3
Junior H.S.	77	--	--	1	1.3	4	5.2	69	89.6	3	3.9	--	--	--	--	--	--
Traditional H.S.	62	1	1.6	1	1.6	4	6.4	50	80.7	1	1.6	1	1.6	2	3.2	2	3.2
Senior H.S.	50	1	2.0	2	4.0	3	6.0	23	46.0	17	34.0	2	4.0	--	--	2	4.0

Note: Detail may not add to total due to rounding.

TABLE VIII Number of public secondary schools in which industrial arts is compulsory for boys and for girls, by number of weeks and grade level: Southern Appalachian Region, 1964-65

Year and Grade level	Schools in which industrial arts is compulsory	Time compulsory for boys						Time compulsory for girls					
		Total	1 to 6 weeks	7 to 12 weeks	13 to 20 weeks	21 to 29 weeks	30 or more weeks	Total[1]	1 to 6 weeks	7 to 12 weeks	13 to 20 weeks	21 to 29 weeks	30 or more weeks
		3	4	5	6	7	8	9	10	11	12	13	14
1954-55 All Schools with industrial arts													
Grade 7	51	51	--	7	17	1	26	4	--	1	2	--	1
Grade 8	57	57	--	5	20	3	29	5	--	1	2	--	2
Grade 9	28	28	--	--	7	1	20	1	--	--	--	--	1
Grade 10	8	8	--	1	1	--	6	1	--	--	--	--	1
Grade 11	4	4	--	1	--	--	3	--	--	--	--	--	--
Grade 12	4	4	--	1	--	--	3	--	--	--	--	--	--
1958-59 All Schools with industrial arts													
Grade 7	54	52	--	4	20	1	27	4	--	--	3	--	1
Grade 8	60	60	--	3	23	2	32	5	--	--	3	--	2
Grade 9	29	29	--	--	7	1	21	2	--	--	--	--	2
Grade 10	8	8	--	1	1	--	6	1	--	--	--	--	1
Grade 11	5	5	1	1	--	--	3	--	--	--	--	--	--
Grade 12	5	5	1	1	--	--	3	--	--	--	--	--	--
1962-63 All Schools with industrial arts													
Grade 7	65	63	--	6	22	1	34	5	--	--	3	--	2
Grade 8	76	76	--	6	26	3	41	6	--	--	3	--	3
Grade 9	40	40	--	3	7	--	30	2	1	--	--	--	1
Grade 10	11	11	--	2	1	--	8	1	--	--	--	--	1
Grade 11	9	9	1	2	1	--	5	--	--	--	--	--	--
Grade 12	8	8	2	1	--	--	5	1	--	--	--	--	--

Note: Detail may not add to total due to rounding and non-response.

TABLE IX Percent of public secondary schools in which industrial arts is compulsory for boys and for girls, by number of weeks and grade level: Southern Appalachian Region, 1964-65.

Year and grade level	Schools in which industrial arts is compulsory	Time compulsory for boys						Time compulsory for girls					
		Total	1 to 6 weeks	7 to 12 weeks	13 to 20 weeks	21 to 29 weeks	30 or more weeks	Total[1]	1 to 6 weeks	7 to 12 weeks	13 to 20 weeks	21 to 29 weeks	30 or more weeks
		3	4	5	6	7	8	9	9	10	11	12	13
1954-55													
All Schools with industrial arts													
Grade 7	18.4	100.0	--	13.7	33.3	2.0	51.0	100.0	--	25.0	50.0	--	25.0
Grade 8	20.8	100.0	--	8.8	35.1	5.3	50.9	100.0	--	20.0	40.0	--	40.0
Grade 9	10.1	100.0	--	--	25.0	3.6	71.4	100.0	--	--	--	--	100.0
Grade 10	2.9	100.0	--	12.5	12.5	--	75.0	100.0	--	--	--	--	100.0
Grade 11	1.5	100.0	--	25.0	--	--	75.0	100.0	--	--	--	--	--
Grade 12	1.5	100.0	--	25.0	--	--	75.0	100.0	--	--	--	--	--
1958-59													
All Schools with industrial arts													
Grade 7	19.5	100.0	--	7.7	38.5	1.9	51.9	100.0	--	--	75.0	--	25.0
Grade 8	21.7	100.0	--	5.0	38.3	3.3	53.3	100.0	--	--	60.0	--	40.0
Grade 9	10.5	100.0	--	--	24.1	3.4	72.5	100.0	--	--	--	--	100.0
Grade 10	2.9	100.0	--	--	12.5	--	75.0	100.0	--	--	--	--	100.0
Grade 11	1.8	100.0	20.0	20.0	--	--	60.0	100.0	--	--	--	--	--
Grade 12	1.8	100.0	20.0	20.0	--	--	60.0	100.0	--	--	--	--	--
1962-63													
All Schools with industrial arts													
Grade 7	23.1	100.0	--	9.5	34.9	1.6	54.0	100.0	--	--	60.0	--	40.0
Grade 8	27.4	100.0	--	7.9	34.2	3.9	53.9	100.0	--	--	50.0	--	50.0
Grade 9	14.4	100.0	--	7.5	17.5	--	75.0	100.0	50.0	--	--	--	50.0
Grade 10	4.0	100.0	--	18.2	9.1	--	72.7	100.0	--	--	--	--	100.0
Grade 11	3.2	100.0	11.1	22.2	11.1	--	55.5	100.0	--	--	--	--	--
Grade 12	2.9	100.0	25.0	12.5	--	--	62.5	100.0	100.0	--	--	--	--

TABLE X Number and percent of public secondary schools allowing substitution of industrial arts courses for science credit, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total schools with industrial arts program	Schools allowing substitution for science credit		Schools not allowing substitution for science credit	
		Number	Percent	Number	Percent
	2	3	4	5	6
All sizes	277	15	5.4	250	90.2
2500 and over	1	--	--	1	100.0
1500 to 2499	16	--	--	15	93.8
1000 to 1499	39	1	2.6	37	94.9
750 to 999	53	1	1.9	52	98.1
500 to 749	72	6	8.3	63	87.5
400 to 499	26	1	3.8	22	84.6
300 to 399	25	2	8.0	23	92.0
200 to 299	22	--	--	21	95.5
100 to 199	17	3	16.7	13	85.3
1 to 99	5	1	20.0	3	60.0
All types	277	15	5.4	250	90.2
Junior-Senior High School	88	7	8.0	76	86.4
Junior High School	77	7	9.1	70	90.9
Traditional High School	62	1	1.6	58	93.5
Senior High School	50	--	--	46	92.0

Note: Detail may not add to total because of rounding.

TABLE XI Number and percent of public secondary schools according to expenditures for industrial arts supplies, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total number of schools with industrial arts programs	Expenditures		Schools by Expenditure															
		Total	Mean per School	None		$1 to $249		$250 to $499		$500 to $749		$750 to $999		$1000 to $1999		$2000 to $3999		$4000 and more	
	2	3	4	5		6		7		8		9		10		11		12	
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	277	$164,125	$592	38	13.7	48	17.3	78	28.2	57	20.6	14	5.1	34	12.3	5	1.9	3	1.1
2500 and over	1	5,000	$5,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	100.0
1500 to 2499	16	12,625	788	2	12.5	1	6.3	2	12.5	4	25.0	2	12.5	5	31.5	--	--	--	--
1000 to 1499	39	26,125	669	13	33.3	1	2.6	6	15.4	6	15.4	4	10.2	7	17.9	2	5.5	--	--
750 to 999	53	35,250	665	--	--	10	18.9	19	35.8	11	20.8	4	7.5	7	13.2	2	3.8	--	--
500 to 749	72	46,750	649	4	5.6	11	15.3	25	34.7	22	31.9	2	2.8	5	6.9	1	1.4	2	2.8
400 to 499	27	13,250	491	8	29.6	3	11.1	8	29.6	1	3.7	2	7.4	5	18.5	--	--	--	--
300 to 399	25	10,750	430	1	4.0	7	28.0	10	40.0	5	20.0	--	--	2	8.0	--	--	--	--
200 to 299	22	7,125	323	2	9.1	10	45.5	5	22.8	4	18.2	--	--	1	4.5	--	--	--	--
100 to 199	17	6,000	353	7	41.2	3	17.6	2	11.7	3	17.6	--	--	2	11.7	--	--	--	--
1 to 99	5	1,250	250	1	20.0	2	40.0	1	20.0	1	20.0	--	--	--	--	--	--	--	--
All types	277	$164,125	$592	38	13.7	48	17.3	78	28.2	57	20.6	14	5.1	34	12.3	5	1.9	3	1.1
Junior-Senior H.S.	88	52,875	601	6	6.9	19	21.5	23	26.1	22	25.0	3	3.4	13	14.7	2	2.3	--	--
Junior H.S.	77	38,250	497	6	7.8	22	28.4	22	28.4	17	22.1	3	3.9	6	7.8	--	--	1	1.3
Traditional H.S.	62	32,250	520	16	25.8	4	6.2	21	33.5	9	14.5	2	2.6	9	14.5	1	1.3	--	--
Senior H.S.	50	40,750	815	10	20.0	3	6.0	12	24.0	9	18.0	6	12.0	6	12.0	2	4.0	2	4.0

Note: Detail may not add to total because of rounding.

TABLE XII Number and percent of public secondary schools according to expenditures for industrial arts equipment, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total number of schools with industrial arts programs	Expenditures		Schools by Expenditure															
		Total	Mean per School	None		$1 to $249		$250 to $499		$500 to $749		$750 to $999		$1000 to $1999		$2000 to $3999		$4000 and more	
	2	3	4	5		6		7		8		9		10		11		12	
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	277	$159,250	$574	90	32.5	54	19.5	59	21.3	20	7.2	9	3.2	26	9.1	12	4.7	7	2.5
2500 and over	1	875	875	--	--	--	--	--	--	--	--	1	100.0	--	--	--	--	--	--
1500 to 2499	16	4,500	219	7	43.8	2	12.5	5	32.3	--	--	1	6.3	1	6.3	--	--	--	--
1000 to 1499	39	29,625	760	14	35.9	3	7.2	6	15.4	4	10.2	--	--	9	23.1	2	5.5	1	2.6
750 to 999	53	37,250	703	19	35.8	8	15.1	9	16.9	4	7.5	1	1.9	7	13.2	3	5.7	2	3.8
500 to 749	72	40,750	561	21	29.2	13	18.1	20	27.8	5	6.9	4	5.6	4	5.6	3	4.2	2	2.8
400 to 499	27	16,125	597	9	33.3	7	25.9	4	14.8	2	7.4	--	--	3	11.1	1	3.7	1	3.7
300 to 399	25	11,250	450	7	28.0	6	24.0	8	32.0	1	4.0	1	4.0	--	--	2	8.0	--	--
200 to 299	22	10,625	483	7	31.8	7	31.8	3	13.6	2	9.1	1	4.5	1	4.5	--	--	1	4.5
100 to 199	17	6,250	368	6	35.3	4	23.5	4	23.5	2	11.7	--	--	--	--	1	5.6	--	--
1 to 99	5	2,000	500	--	--	4	80.0	--	--	--	--	--	--	1	20.0	--	--	--	--
All types	277	$159,250	$574	90	32.5	54	19.5	59	21.3	20	7.2	9	3.2	26	9.1	12	4.7	7	2.5
Junior-Senior H.S.	88	49,000	557	33	37.3	11	12.6	21	23.9	3	3.4	5	5.8	9	11.2	5	5.8	1	1.0
Junior H.S.	77	38,750	503	13	16.9	29	37.7	16	20.8	7	9.9	2	2.6	6	7.8	3	3.9	1	1.3
Traditional H.S.	62	47,500	766	23	37.1	8	12.9	10	16.1	6	9.7	--	--	8	12.9	4	6.4	3	4.8
Senior H.S.	50	24,000	480	21	42.0	6	12.0	12	24.0	4	8.0	2	4.0	3	6.0	--	--	2	4.0

Note: Detail may not add to total due to rounding.

TABLE XIII Number and percent of public secondary schools administering work-experience programs, by type of program and enrollment size and type of school: **Southern Appalachian Region, 1964-65.**

Enrollment size and type	Total number of schools with industrial arts programs	In School				Out of School				Other		No work experience programs	
		Nonremunerative general education work experience program		Remunerative general education work experience program		Nonremunerative general education work experience program		Remunerative general education work experience program					
	2	3		4		5		6		7		8	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	277[1]	43	15.5	17	6.1	1	.4	8	2.9	2	.8	197	71.0
2500 and over	1	--	--	--	--	--	--	--	--	--	--	1	100.0
1500 to 2499	16	3	18.8	2	12.5	--	--	2	12.5	--	--	10	62.5
1000 to 1499	39	7	17.9	1	2.6	--	--	1	2.6	--	--	31	79.5
750 to 999	53	5	9.4	4	7.5	--	--	1	1.9	--	--	39	73.6
500 to 749	72	11	15.3	3	4.2	--	--	--	--	1	1.4	56	77.8
400 to 499	26	4	15.4	1	3.8	--	--	1	3.8	--	--	16	61.5
300 to 399	25	2	8.0	--	--	--	--	--	--	--	--	21	84.0
200 to 299	22	2	9.1	3	13.6	--	--	1	4.5	--	--	13	59.1
100 to 199	18	7	38.9	3	16.7	1	5.6	2	11.1	--	--	8	44.4
1 to 99	5	2	40.0	--	--	--	--	--	--	1	20.0	2	40.0
All types	277	43	15.5	17	6.1	1	.4	8	2.9	2	.8	197	71.0
Junior-Senior H.S.	88	16	18.2	7	8.0	--	--	3	3.4	--	--	62	70.5
Junior H.S.	77	12	15.6	2	2.6	1	1.3	--	--	1	1.3	59	76.6
Traditional H.S.	62	11	17.7	5	8.1	--	--	2	3.2	--	--	39	62.9
Senior H.S.	50	4	8.0	3	6.0	--	--	3	6.0	1	2.0	37	74.0

[1] The sum of columns 3 through 8 is less than the total number of schools with industrial arts due to non-response

Note: Detail may not add to total due to rounding.

TABLE XIV Percent of public secondary schools according to number of industrial arts teachers per school, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total number of schools with industrial arts programs	Total number of industrial arts teachers	Number of industrial arts teachers per school							
			Median	Mean	1	2	3	4	5	6
	2	3	4	5	6	7	8	9	10	11
All sizes	277	403	1.5	1.4	67.8	22.7	6.9	1.4	.7	.3
7500 and over	1	5	5.0	5.0	--	--	--	--	100.0	--
1500 to 2499	16	39	2.4	2.0	37.5	25.0	12.5	12.5	6.3	6.3
1000 to 1499	39	79	2.0	2.0	25.6	48.7	23.1	2.7	--	--
750 to 999	53	77	1.5	1.3	61.1	29.6	9.3	--	--	--
500 to 749	72	97	1.3	1.3	68.5	29.2	2.7	--	--	--
400 to 499	27	29	1.4	1.1	92.6	7.4	--	--	--	--
300 to 399	25	26	1.0	1.1	96.0	4.0	--	--	--	--
200 to 299	22	24	1.0	1.0	95.5	--	4.5	--	--	--
100 to 199	17	22	1.3	1.1	88.2	--	5.8	5.8	--	--
1 to 99	5	5	1.0	1.0	100.9	--	--	--	--	--
All types	277	403	1.5	1.4	67.5	22.7	6.9	1.4	.7	.3
Junior-Senior H.S.	88	115	1.3	1.4	78.4	17.4	2.2	1.1	--	1.1
Junior H.S.	77	113	1.5	1.2	65.0	24.7	9.1	1.3	--	--
Traditional H.S.	62	90	1.5	1.5	67.2	20.9	9.6	1.6	--	--
Senior H.S.	50	85	1.7	1.2	54.0	32.0	8.0	2.0	4.0	--

Note: Detail may not add to total due to rounding.

TABLE XV Number and percent of industrial arts teachers in public secondary schools according to highest degree earned and type of certificate, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total Teachers	Highest degree earned												Type of certificate			
		Bachelor's		Master's		Associate		Doctors		Other		No degree		Regular or Standard		Emergency or sub-standard	
	2	3		4		5		6		7		8		9		10	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	371	254	65.8	105	28.3	2	.5	--	--	2	.5	7	1.9	306	82.5	22	5.9
2500 and over	5	3	60.0	2	40.0	--	--	--	--	--	--	--	--	5	100.0	--	--
1500 to 2499	39	20	51.3	16	41.0	--	--	--	--	1	2.6	2	5.1	35	89.7	1	2.6
1000 to 1499	74	41	55.4	27	36.5	1	1.4	--	--	1	1.4	3	4.1	57	77.0	11	14.9
750 to 999	72	50	69.4	22	30.6	--	--	--	--	--	--	--	--	61	84.7	1	1.4
500 to 749	84	59	70.2	22	26.2	1	1.2	--	--	--	--	2	2.4	72	85.7	3	3.6
400 to 499	29	26	89.7	3	10.3	--	--	--	--	--	--	--	--	23	79.3	1	3.4
300 to 399	26	23	88.5	3	11.5	--	--	--	--	--	--	--	--	20	76.9	2	7.7
200 to 299	22	17	77.3	5	22.7	--	--	--	--	--	--	--	--	18	81.8	1	4.5
100 to 199	15	13	86.7	2	13.3	--	--	--	--	--	--	--	--	12	80.0	1	6.7
1 to 99	5	2	40.0	3	60.0	--	--	--	--	--	--	--	--	3	60.0	1	20.0
All types	371	254	65.8	105	28.3	2	.5	--	--	2	.5	7	1.9	306	82.5	22	5.9
Junior-Senior H.S.	104	77	74.0	21	20.2	1	1.0	--	--	1	1.0	4	3.8	86	82.7	5	4.8
Junior H.S.	96	64	66.7	31	32.3	--	--	--	--	--	--	1	1.0	79	82.3	7	7.3
Traditional H.S.	90	62	68.9	26	28.9	1	1.1	--	--	1	1.1	--	--	67	74.4	5	5.6
Senior H.S.	81	51	63.0	27	33.8	--	--	--	--	--	--	2	2.5	74	91.4	5	6.3

Note: Detail may not add to total due to rounding and non-response.

TABLE XVI Percent of industrial arts teachers in public secondary schools according to number of semester hours earned in various curriculum areas: Southern Appalachian Region, 1964-65.

Curriculum areas	Total percent of teachers	Number of semester hours completed							
		0 to 5	6 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 and over	Non-response
	2	3	4	5	6	7	8	9	10
All areas									
Science and math	100	3.2	16.2	37.5	18.3	10.5	3.2	3.5	7.5
Technical courses	100	2.4	8.6	10.2	19.1	16.0	15.6	23.2	5.4
Educational	100	.5	3.3	18.1	31.8	17.5	12.4	11.3	5.1
All others	100	.0	1.9	5.9	13.5	14.3	17.5	39.9	7.0

Note: Detail may not add to total because of rounding.

TABLE XVII Percent of industrial arts teachers in public secondary schools with a bachelor's degree, by number of semester hours earned in various curriculum areas: Southern Appalachian Region, 1964-65.

Curriculum areas	Total percent of teachers	Number of semester hours completed							
		0 to 5	6 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 and over	non-response
	2	3	4	5	6	7	8	9	10
All areas									
Science and math	100	4.6	16.2	37.9	19.4	11.5	2.4	2.4	6.3
Technical Courses	100	2.8	9.9	11.5	19.0	14.2	17.4	21.0	4.4
Educational	100	.8	3.2	22.1	38.7	16.2	9.1	4.7	5.1
All others	100	--	.4	7.5	15.4	15.0	17.8	38.3	5.5

Note: Detail may not add to total because of rounding.

TABLE XVIII Percent of industrial arts teachers in public secondary schools with a master's degree, by number of semester hours earned in various curriculum areas: Southern Appalachian Region, 1964-65.

Curriculum areas	Total percent of teachers	Number of semester hours completed							
		0 to 5	6 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 and over	non-response
	2	3	4	5	6	7	8	9	10
All areas									
Science and math	100	1.0	16.2	40.0	15.6	8.6	5.7	5.7	7.6
Technical Courses	100	1.9	4.8	8.6	21.9	19.1	9.5	28.6	5.7
Educational	100	--	1.0	9.5	16.2	21.0	21.0	27.6	3.8
All others	100	--	2.9	1.9	10.5	14.3	19.1	43.8	7.6

Note: Detail may not add to total because of rounding.

TABLE XIX Percent of industrial arts teachers in public secondary schools with one year's teaching experience in public secondary schools, by number of semester hours earned in various curriculum areas: Southern Appalachian Region, 1964-65.

Curriculum areas	Total percent of teachers	Number of semester hours completed							
		0 to 5	6 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 and over	non-response
	2	3	4	5	6	7	8	9	10
All areas									
Science and math	100	--	14.8	51.8	18.5	11.1	--	3.7	--
Technical Courses	100	3.7	7.4	14.8	14.8	14.8	22.2	22.2	--
Educational	100	7.4	14.8	25.9	37.0	11.1	--	3.7	--
All others	100	--	3.7	--	11.1	18.5	18.5	48.2	--

Note: Detail may not add to total because of rounding.

TABLE XX Number and percent of industrial arts teachers in public secondary schools according to annual gross school salary, by enrollment size and type of school, and months of teaching: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total number of teachers		Mean	Annual gross salary									
				Distribution of teachers, by salary									
				$3000-$3999		$4000-4999		$5000-5999		$6000-6999		$7000-7999	
	2		3	4		5		6		7		8	
	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	348	100	$5161	19	5.5	165	47.5	95	27.4	53	15.2	16	4.6
2500 and over	5	100	4900	--	--	3	60.0	2	40.0	--	--	--	--
1500 to 2499	37	100	5960	1	2.7	6	16.2	12	32.4	11	29.7	7	18.9
1000 to 1499	67	100	5246	3	4.5	28	41.8	20	29.9	15	22.4	1	1.5
750 to 999	70	100	5171	4	5.7	37	52.9	12	17.1	12	17.1	5	7.1
500 to 749	80	100	5163	5	6.2	32	40.0	30	37.5	11	13.8	2	1.3
400 to 499	26	100	4692	2	2.7	21	80.8	5	19.2	--	--	--	--
300 to 399	26	100	4808	2	7.7	17	65.4	4	15.4	3	11.5	--	--
200 to 299	18	100	4722	3	16.7	8	44.4	7	38.9	--	--	--	--
100 to 199	15	100	4700	--	--	12	80.0	3	20.0	--	--	--	--
0 to 99	4	100	5500	1	20.0	1	20.0	--	--	1	20.0	1	20.0
All types	348	100	$5161	19	5.5	165	47.5	95	27.4	53	15.2	16	4.6
Junior-Senior H.S.	92	100	4957	10	9.6	41	39.4	32	30.8	7	6.7	2	1.9
Junior H.S.	92	100	5185	3	3.1	42	43.3	30	30.9	15	15.5	2	2.1
Traditional H.S.	88	100	5102	4	4.4	51	56.7	13	14.4	16	17.8	4	4.4
Senior H.S.	76	100	5161	2	2.5	31	38.7	20	25.0	15	18.8	8	10.0

Note: Detail may not add to total due to rounding.

TABLE XX Number and percent of industrial arts teachers in public secondary schools according to annual gross school salary, by enrollment size and type of school, and months of teaching: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Total number of teachers		Mean	Annual gross salary									
				Distribution of teachers, by salary									
				$3000-3999		$4000-4999		$5000-5999		$6000-6999		$7000-7999	
	2		3	4		5		6		7		8	
	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%
Number of months taught													
7 or fewer	2	100	4500	--	--	2	100	--	--	--	--	--	--
8	0	100	--	--	--	--	--	--	--	--	--	--	--
9	142	100	4873	10	7.1	82	57.7	38	27.7	11	7.7	1	.7
10	174	100	5276	9	5.2	74	42.5	48	27.6	33	18.9	10	5.6
11	7	100	5800	--	--	1	14.2	4	57.1	1	14.2	1	14.2
12	18	100	6000	--	--	4	22.2	4	22.2	7	38.8	3	16.7

Note: Detail may not add to total due to rounding.

TABLE XXI Number and percent of industrial arts teachers in public secondary schools according to income from second teaching job, by selected school and teacher characteristics: Southern Appalachian Region, 1964-65.

Enrollment size and type	Teachers					Income from second teaching job								
	Total	Without second teaching job		With second teaching job		Total	$50 - 299		$300 - 699		$700 - 1099		$1100 and above	
	2	3		4		5	6		7		8		9	
		No.	%	No.	%		No.	%	No.	%	No.	%	No.	%
All sizes	371	330	88.9	41	11.1	659	12	3.2	12	3.2	8	2.1	9	2.4
2500 and over	5	5	100	--	--	--	--	--	--	--	--	--	--	--
1500 to 2499	39	30	76.9	9	23.1	819	1	2.6	2	5.2	4	10.3	2	5.2
1000 to 1499	74	65	87.8	9	12.2	918	2	2.8	3	4.1	--	--	4	5.4
750 to 999	72	66	91.7	6	8.3	658	2	2.8	1	1.4	2	2.8	1	1.4
500 to 749	84	72	85.7	12	14.7	525	4	4.8	5	6.0	2	2.4	1	1.2
400 to 499	29	27	93.1	2	6.9	338	1	3.4	1	3.4	--	--	--	--
300 to 399	26	26	100	--	--	--	--	--	--	--	--	--	--	--
200 to 299	22	20	90.9	2	9.1	1300	1	4.5	--	--	--	--	1	4.5
100 to 199	15	14	93.3	1	6.7	175	1	6.7	--	--	--	--	--	--
1 to 99	5	5	--	--	--	--	--	--	--	--	--	--	--	--
All types	371	330	88.9	41	11.1	659	12	3.2	12	3.2	8	2.1	9	2.4
Junior-Senior H.S.	104	90	86.5	14	13.5	561	6	5.8	4	3.9	1	1.0	3	2.9
Junior H.S.	96	88	91.8	8	8.2	759	1	1.0	3	3.1	2	2.0	2	2.0
Traditional H.S.	90	85	94.4	5	5.6	495	1	1.1	2	2.2	--	--	2	2.2
Senior H.S.	81	67	82.7	14	17.3	664	4	4.9	3	3.7	5	6.2	2	2.5

TABLE XXI Number and percent of industrial arts teachers in public secondary schools according to income from second teaching job, by selected school and teacher characteristics: Southern Appalachian Region, 1964-65--continued.

Degree, years of teaching and certification	Teachers			Income from second teaching job								
	Total	Without second teaching job	With second teaching job	Mean	$50 - 299		$300 - 699		$700 - 1099		$1100 and above	
	2	3	4	5	6		7		8		9	
					No.	%	No.	%	No.	%	No.	%
All degrees	371	330	41	659	12	3.2	12	3.2	8	2.1	9	2.2
No degrees	7	6	1	175	1	14.3	--	--	--	--	--	--
Associate	2	1	1	1300	--	--	--	--	--	--	1	50.0
Bachelors	255	227	27	667	7	2.8	9	3.6	5	2.0	6	2.4
Masters	105	93	12	625	4	3.8	3	2.9	3	2.9	2	1.9
Doctors	--	--	--	--	--	--	--	--	--	--	--	--
Other	2	2	--	--	--	--	--	--	--	--	--	--
All years teaching	371	330	41	659	12	3.2	12	3.2	8	2.2	9	2.2
One year	27	27	--	--	--	--	--	--	--	--	--	--
2 to 3 years	70	65	5	530	2	2.9	2	2.9	--	--	1	1.4
4 to 5 years	42	37	5	675	1	1.2	2	4.8	1	2.4	1	2.4
6 to 10 years	101	90	11	659	2	2.0	5	5.0	2	2.0	2	2.0
11 to 15 years	39	32	7	853	1	2.6	2	5.1	1	2.6	3	7.7
16 to 20 years	27	25	2	538	1	3.7	--	--	1	3.7	--	--
21 or over	65	54	11	607	5	7.7	1	1.5	3	4.6	2	3.1
All types certificates	371	330	41	659	12	3.2	12	3.2	8	2.1	9	2.2
Regular or standard	306	273	33	626	11	3.6	9	2.9	7	2.3	6	2.0
Emergency or substitute	22	21	1	500	--	--	1	4.5	--	--	--	--
No response	43	36	7	853	1	2.4	2	4.8	1	2.4	3	5.7

Note: Detail may not add to total due to rounding.

TABLE XXII Number and percent of industrial arts teachers in public secondary schools according to income from nonteaching job, by enrollment size and type of school, degree, certification, and years of teaching industrial arts: Southern Appalachian Region, 1964-65.

Enrollment size and type	Teachers					Income from nonteaching job											
	Total	Without non-teaching job		With non-teaching job		Total	$50 - 299		$300 - 699		$700 - 1099		$1100-1499		$1500 and above	
	2	3		4		5	6		7		8		9		10	
		No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	371	181	48.8	190	51.2	903	10	2.7	79	21.6	47	12.7	9	2.4	45	12.1
2500 and over	5	3	60.0	2	40.0	700	--	--	1	20.0	1	20.0	--	--	--	--
1500 to 2499	39	19	48.7	20	51.3	920	--	--	9	23.1	6	15.4	--	--	5	12.9
1000 to 1499	74	36	48.6	38	51.4	999	2	2.7	11	14.9	12	16.3	2	2.7	11	14.9
750 to 999	72	42	58.3	30	41.7	958	2	2.8	10	13.9	8	11.1	2	2.8	8	11.1
500 to 749	84	35	41.7	49	58.3	880	3	3.6	23	27.4	8	9.6	4	4.8	11	13.1
400 to 499	29	11	37.9	18	62.1	967	--	--	9	31.0	3	10.3	--	--	6	20.7
300 to 399	26	11	42.3	15	57.7	767	--	--	7	26.9	7	26.9	--	--	1	3.8
200 to 299	22	14	63.6	8	36.4	850	--	--	5	22.7	1	4.5	--	--	2	9.1
100 to 199	15	7	46.7	8	53.3	673	3	20.0	2	13.4	1	6.7	1	6.7	1	6.7
1 to 99	5	3	60.0	2	40.0	500	--	--	2	40.0	--	--	--	--	--	--
All types	371	181	48.8	190	51.2	903	10	2.7	79	21.6	47	12.7	9	2.4	45	12.1
Junior-Senior H.S.	104	57	54.8	47	45.2	848	5	4.8	20	19.2	10	9.6	1	1.0	11	10.7
Junior H.S.	96	48	50.0	48	50.0	865	4	4.1	21	21.7	10	10.3	2	2.1	11	11.4
Traditional H.S.	90	40	44.4	50	55.6	869	1	1.1	24	26.6	12	13.4	4	4.4	9	10.0
Senior H.S.	81	36	44.4	45	55.6	1042	--	--	14	17.5	15	18.7	2	2.5	14	17.5

Note: Detail may not add to total due to rounding.

TABLE XXII Number and percent of industrial arts teachers in public secondary schools according to income from nonteaching job, by enrollment size and type of school, degree, certification, and years of teaching industrial arts: Southern Appalachian Region, 1964-65—continued.

Degree, years of teaching and certification	Teachers			Income from nonteaching job										
	Total 2	Without non-teaching job 3	With non-teaching job 4	Total 5	$50 - 299 6		$300 - 699 7		$700 - 1099 8		$1100-1499 9		$1500 and above 10	
					No.	%	No.	%	No.	%	No.	%	No.	%
All degrees	371	181	190	$ 903	10	2.7	79	21.6	47	12.7	9	2.4	45	12.1
No degree	7	6	1	1700	--	--	--	--	--	--	--	--	1	14.3
Associate	2	1	1	1700	--	--	--	--	--	--	--	--	1	50.0
Bachelors	254	123	131	922	6	2.4	52	20.4	35	13.8	6	2.4	32	12.7
Masters	105	49	56	841	4	3.8	26	24.7	12	11.5	3	2.9	11	10.5
Doctors	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other	3	2	1	500	--	--	1	33.0	--	--	--	--	--	--
All years teaching	371	181	190	903	10	2.7	79	21.6	47	12.7	9	2.4	45	12.1
1 year	28	16	12	738	1	3.7	6	22.2	3	11.1	1	3.7	1	3.7
2 to 3 years	69	35	34	855	1	1.4	18	26.1	6	8.7	2	2.9	7	9.9
4 to 5 years	42	15	27	846	2	4.8	12	28.5	7	16.7	--	--	6	14.3
6 to 10 years	101	46	55	1054	1	1.0	17	16.8	15	14.9	4	4.0	18	17.9
11 to 15 years	39	18	21	885	1	2.6	9	23.1	6	7.4	--	--	5	7.7
16 to 20 years	27	17	10	908	1	3.7	4	14.8	2	7.4	--	--	3	11.1
21 or more	65	34	31	817	3	4.6	13	20.0	8	12.3	2	3.1	5	7.7
All types of certificates	371	181	190	903	10	2.7	79	21.6	47	12.7	9	2.4	45	12.1
Regular or standard	307	147	160	901	6	2.0	68	21.9	41	13.4	6	1.9	39	12.7
Emergency or substitute	22	14	8	769	2	9.1	3	13.6	1	4.5	--	--	2	9.1
No response	42	20	22	888	2	4.8	8	19.0	5	11.9	3	7.2	4	9.6

Note: Detail may not add to total due to rounding.

TABLE XXIII Number and percent of industrial arts teachers in public secondary schools according to the number of years of teaching experience, by enrollment size and type of school: Southern Appalachian Region 1964-65.

Enrollment size and type	Total number of teachers	Years Taught		Number of years taught													
		Median	Mean	1		2 - 3		4 - 5		6 - 10		11 - 15		16 - 20		Over 21	
	2	3	4	5		6		7		8		9		10		11	
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	371	8.3	9.6	27	7.3	69	18.6	42	11.3	101	27.2	39	10.5	27	7.3	65	17.5
2500 and over	5	18.0	13.4	--	--	1	20.0	1	20.0	--	--	--	--	1	20.0	1	40.0
1500 to 2499	39	11.8	12.3	--	--	6	15.4	2	5.1	11	28.2	6	15.4	2	5.1	12	30.8
1000 to 1499	74	8.2	9.5	7	9.5	18	24.3	6	8.1	18	24.3	6	8.1	--	--	19	25.7
750 to 999	72	7.5	8.6	8	11.1	14	19.4	8	11.1	21	29.2	7	9.7	4	5.6	10	13.9
500 to 749	84	9.5	10.2	3	3.6	11	13.1	12	14.3	25	29.8	8	9.5	13	15.5	11	13.1
400 to 499	29	8.2	8.5	2	6.9	5	17.2	4	13.8	9	31.0	5	17.2	1	3.4	3	10.3
300 to 399	26	6.0	8.2	1	3.8	8	30.8	5	19.2	5	19.2	1	3.8	3	11.5	3	11.5
200 to 299	22	7.7	8.5	6	27.3	--	--	3	13.6	6	27.3	3	13.6	2	9.1	2	9.1
100 to 199	15	8.5	9.4	--	--	4	26.7	1	6.7	5	33.3	2	13.3	1	6.7	2	13.3
1 to 99	5	8.5	9.4	--	--	2	40.0	--	--	1	20.0	1	20.0	--	--	1	20.0
All types	371	8.3	9.6	27	7.3	69	18.6	42	11.3	101	27.2	39	10.5	27	7.3	65	17.5
Junior-senior H.S.	104	8.1	9.0	9	8.7	23	22.1	9	8.7	28	26.9	14	13.5	6	5.8	15	14.4
Junior H.S.	96	8.4	10.4	5	5.2	20	20.8	14	14.6	20	20.8	5	5.2	11	11.5	21	21.9
Traditional H.S.	90	8.5	9.2	7	7.8	11	12.2	13	14.4	31	34.4	10	11.1	3	3.3	14	15.6
Senior H. S.	81	9.3	10.1	6	7.5	15	18.8	6	7.5	22	27.5	10	12.5	7	8.8	15	18.5

Note: Detail may not add to total due to rounding.

TABLE XXIV Number and percent of industrial arts teachers in public secondary schools according to the length of full-time industrial experience or equivalent, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total industrial arts teachers	Years of industrial experience																		
		Mean	Median	none		Less than 1/2		1/2 - 2		2 - 3		4 - 5		6 - 10		11- 15		16 and above	
				5		6		7		8		9		10		11		12	
	2	3	4	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	371	3.4	3.3	96	25.9	24	6.5	33	8.9	59	15.9	40	10.8	57	15.4	27	7.3	35	9.4
2500 and over	5	8.3	8.0	1	20.0	--	--	--	--	--	--	1	20.0	1	20.0	1	20.0	1	20.0
1500 to 2499	39	4.7	3.6	12	30.8	--	--	2	5.1	7	17.9	5	12.8	7	17.9	4	10.3	2	5.1
1000 to 1499	74	4.7	3.3	21	28.4	4	5.4	3	4.1	14	18.9	9	12.2	10	13.5	7	9.5	6	8.1
750 to 999	72	4.3	2.5	19	26.4	8	11.1	9	12.5	9	12.5	6	8.3	7	9.7	8	11.1	6	8.3
500 to 749	84	4.0	2.9	23	27.4	6	7.1	4	4.8	21	25.0	10	11.9	9	10.7	5	6.0	6	7.1
400 to 499	29	5.1	3.2	8	27.6	2	6.9	2	6.9	4	13.8	2	6.9	6	20.7	1	3.4	4	13.8
300 to 399	26	5.4	4.4	3	11.5	2	7.7	6	23.1	2	7.7	3	11.5	6	23.1	--	--	4	15.4
200 to 299	22	5.5	5.5	6	27.3	--	--	3	13.6	1	4.5	1	4.5	8	36.4	1	4.5	2	9.1
100 to 199	15	6.3	4.0	2	13.3	1	6.7	4	26.7	--	--	2	13.3	2	13.3	--	--	4	26.7
1 to 99	5	3.2	3.0	1	20.0	1	20.0	--	--	1	20.0	1	20.0	1	20.0	--	--	--	--
All types	371	3.4	3.3	96	25.9	24	6.5	33	8.9	59	15.9	40	10.8	57	15.4	27	7.3	35	9.4
Junior-senior H.S.	104	4.2	2.5	28	26.9	8	7.7	12	11.5	17	16.3	9	8.7	15	14.1	8	7.7	7	6.7
Junior H.S.	96	4.3	2.8	23	24.0	9	9.4	8	8.3	19	19.8	9	9.4	16	16.7	3	3.1	9	9.4
Traditional H.S.	90	5.0	3.8	23	25.6	1	1.1	11	12.2	11	12.2	13	14.4	15	16.7	8	8.9	8	8.9
Senior H.S.	81	5.5	3.8	23	27.2	6	7.4	2	2.5	12	14.8	9	11.2	11	13.6	8	10.1	11	13.6

Note: Detail may not add to total due to rounding.

TABLE XXV Number and percent[1] of industrial arts teachers in public secondary schools with major responsibility for certain school activities, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total teachers	School activities																	
		none		Industrial arts contest		Athletic contests (nonconching duties)		Athletic coach		Industrial arts clubs		School club adviser (other than column 7)		Supervision of school grounds		Field trips (General)		Student council	
	2	3		4		5		6		7		8		9		10		11	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	371	26	7.0	77	20.8	57	15.4	58	15.7	54	14.6	87	23.4	80	21.5	30	8.1	9	2.4
2500 and over	5	1	20.0	--	--	--	--	--	--	1	20.0	2	40.0	--	--	--	--	--	--
1500 to 2499	39	2	5.1	5	12.8	8	20.5	4	10.3	2	5.1	19	48.7	3	7.7	2	5.1	--	--
1000 to 1499	74	6	8.1	15	20.3	9	12.2	9	12.2	12	16.2	22	29.7	16	21.6	9	12.2	1	1.4
750 to 999	72	8	11.1	13	18.1	6	8.3	13	18.1	5	6.9	9	12.5	12	16.7	--	--	1	1.4
500 to 749	84	4	4.8	18	21.4	18	21.4	12	14.3	11	13.1	17	20.2	19	22.6	7	8.3	4	4.8
400 to 499	29	1	3.4	8	27.6	4	13.8	7	24.1	9	31.0	5	17.2	11	37.9	4	13.8	2	6.9
300 to 399	26	--	--	8	30.8	1	3.8	4	15.4	7	26.9	5	19.2	4	15.4	5	19.2	--	--
200 to 299	22	2	9.1	3	13.6	4	18.2	5	22.7	3	13.6	1	4.5	7	31.8	2	9.1	--	--
100 to 199	15	2	13.3	5	33.3	4	26.7	1	6.7	3	20.0	5	33.3	3	20.0	1	6.7	1	6.7
1 to 99	5	--	--	2	40.0	3	60.0	3	60.0	1	20.0	2	40.0	5	100.	--	--	--	--
All types	371	26	7.0	77	20.8	57	15.4	58	15.7	54	14.6	87	23.4	80	21.5	30	8.1	9	2.4
Junior-Senior H.S.	104	7	6.7	13	12.5	16	15.4	23	22.1	19	18.3	21	20.2	19	18.3	7	6.7	3	2.9
Junior H.S.	96	6	6.3	24	25.0	12	12.5	17	17.7	7	7.3	21	21.9	34	35.4	7	7.3	--	--
Traditional H.S.	90	5	5.6	24	26.7	17	18.9	13	14.4	17	18.9	17	18.9	15	16.7	12	13.3	6	6.7
Senior H.S.	81	8	10.0	16	20.0	12	15.0	5	6.3	11	13.8	28	35.0	12	14.8	4	5.0	--	--

Note: Detail may not add to total due to rounding.

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[1] Percents may not add to total due to rounding.

TABLE XXV Number and percent[1] of industrial arts teachers in public secondary schools with major responsibility for certain school activities, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	School Activities																	
	School paper		Student Bookstore or concessions		Yearbook		Lunchroom		Class adviser		Homeroom		Audio-visual coordinator		School Assemblies		Other	
	12		13		14		15		16		17		18		19		20	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	9	2.4	16	4.4	6	1.6	61	16.4	95	25.5	211	56.9	13	3.5	74	19.9		
2500 and over	--	--	1	20.0	--	--	--	--	--	--	5	100.	--	--	--	--		
1500 to 2499	3	7.7	--	--	--	--	3	7.7	4	10.3	22	56.4	--	--	11	28.2	--	--
1000 to 1499	3	4.1	3	4.1	2	2.7	16	21.6	19	25.7	43	58.1	1	1.4	11	14.9	--	--
750 to 999	--	--	1	1.4	2	2.8	9	12.5	13	18.1	42	58.3	--	--	10	13.9	--	--
500 to 749	2	2.4	4	4.8	1	1.2	15	17.9	23	27.4	39	46.4	3	3.6	20	23.8	--	--
400 to 499	--	--	2	5.8	--	--	4	13.8	5	17.2	15	51.7	2	6.9	5	17.2	--	--
300 to 399	--	--	1	3.8	1	3.8	6	23.1	8	30.8	16	61.5	3	11.5	3	11.5	--	--
200 to 299	--	--	2	9.1	--	--	4	18.2	12	54.5	16	72.7	--	--	5	22.7	--	--
100 to 199	--	--	1	6.7	--	--	1	6.7	9	60.0	11	73.3	3	20.0	6	40.0	--	--
1 to 99	1	20.0	1	20.0	--	--	3	60.0	2	40.0	2	40.0	1	20.0	3	60.0	--	--
All types	9	2.4	16	4.4	6	1.6	61	16.4	95	25.5	211	56.9	13	3.5	74	19.9	--	--
Junior-senior H.S.	3	2.9	1	1.0	1	1.0	11	10.6	31	29.8	55	52.9	3	2.9	19	18.3	--	--
Junior H. S.	4	4.2	8	8.3	--	--	29	30.2	17	17.7	51	53.1	6	6.3	17	17.7	--	--
Traditional H.S.	--	--	5	5.6	2	2.2	14	15.6	32	35.6	56	62.2	3	3.3	25	27.8	--	--
Senior H.S.	2	2.5	2	2.5	3	3.8	7	8.8	15	18.8	49	61.3	1	1.3	13	16.3	--	--

Note: Detail may not add to total due to rounding.

[1] Percents may add to more than 100 percent because of multiple response.

TABLE XXVI Number and percent of industrial arts teachers in public secondary schools teaching non-industrial arts courses, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total teachers	Non-industrial arts courses																	
		None		Physical education, hygiene, safety education		General science		Biology		Social studies and citizenship		Geometry		Algebra		General mathematics		General business	
	2	3		4		5		6		7		8		9		10		11	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	371	236	63.6	17	4.6	11	3.0	4	1.1	18	4.9	5	1.3	7	1.9	30	8.1	1	.3
2500 and over	5	5	100.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1500 to 2499	39	23	59.0	--	--	--	--	--	--	1	2.6	--	--	--	--	--	--	--	--
1000 to 1499	74	53	72.6	1	1.4	2	2.7	1	1.4	2	2.7	--	--	2	2.7	3	4.1	1	1.4
750 to 999	72	53	72.6	6	8.3	--	--	--	--	4	5.5	1	1.4	1	1.4	3	4.1	--	--
500 to 749	84	54	64.3	2	2.4	5	6.0	--	--	5	6.0	--	--	--	--	9	10.7	--	--
400 to 499	29	15	51.7	--	--	1	3.4	--	--	1	3.4	1	3.4	1	3.4	5	17.2	--	--
300 to 399	26	17	65.4	--	--	2	7.7	1	3.8	1	3.8	1	3.8	1	3.8	3	11.5	--	--
200 to 299	22	11	50.0	4	19.0	1	4.8	1	4.8	1	4.8	2	9.5	2	9.5	3	14.3	--	--
100 to 199	15	4	26.7	2	13.3	--	--	1	6.7	2	13.3	--	--	--	--	2	13.3	--	--
1 to 99	5	1	20.0	2	40.0	--	--	--	--	1	20.0	--	--	--	--	2	40.0	--	--
All types	371	236	63.6	17	4.6	11	3.0	4	1.1	18	4.9	5	1.3	7	1.9	30	8.1	1	.3
Junior-senior H.S.	104	61	58.7	4	3.8	4	3.8	2	1.9	10	9.6	2	1.9	2	1.9	13	12.5	--	--
Junior H.S.	96	56	58.3	9	9.4	5	5.2	--	--	4	4.2	--	--	--	--	7	7.3	--	--
Traditional H.S.	90	62	68.9	4	4.4	1	1.1	2	2.2	3	3.3	3	3.3	2	2.2	6	6.7	1	1.1
Senior H.S.	81	57	71.0	--	--	1	1.2	--	--	1	1.2	--	--	3	3.7	4	4.9	--	--

Note: Detail may not add to total due to rounding.

TABLE XXVI   Number and percent of industrial arts teachers in public secondary schools teaching non-industrial arts courses, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Non-industrial arts courses															
	Driver education		Physics		Agri-culture		English		Guidance		Art		Vocational courses		Other	
	12		13		14		15		16		17		18		19	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	11	3.0	1	.3	3	.8	2	.5	--	--	--	--	--	--	41	11.1
2500 and over	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1500 to 2499	--	--	--	--	--	--	1	2.6	--	--	--	--	--	--	5	12.8
1000 to 1499	2	2.7	--	--	--	--	1	1.4	--	--	--	--	--	--	11	15.1
750 to 999	1	1.4	--	--	--	--	--	--	--	--	--	--	--	--	5	6.8
500 to 749	3	3.6	1	1.2	1	1.2	--	--	--	--	--	--	--	--	11	13.1
400 to 499	2	6.9	--	--	--	--	--	--	--	--	--	--	--	--	2	6.9
300 to 399	1	3.8	--	--	1	3.8	--	--	--	--	--	--	--	--	2	7.7
200 to 299	1	4.8	--	--	1	4.8	--	--	--	--	--	--	--	--	1	4.8
100 to 199	1	6.7	--	--	--	--	--	--	--	--	--	--	--	--	3	20.0
1 to 99	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	20.0
All types	11	3.0	1	.3	3	.8	2	.5	--	--	--	--	--	--	41	11.1
Junior-senior H.S.	6	5.8	1	1.0	1	1.0	--	--	--	--	--	--	--	--	10	9.6
Junior H.S.	--	--	--	--	1	1.0	--	--	--	--	--	--	--	--	13	13.5
Traditional H.S.	4	4.4	--	--	1	1.1	1	1.1	--	--	--	--	--	--	11	12.2
Senior H.S.	1	1.2	--	--	--	--	1	1.2	--	--	--	--	--	--	7	8.6

Note: Detail may not add to total due to rounding.

TABLE XXVII Number and percent of industrial arts teachers' responses on ability range of students who elect industrial arts courses in public secondary schools, by grade level: Southern Appalachian Region, 1964-65.

Grade level	Total[1]	Ability range of students					
		Generally above average		Generally average		Generally below average	
	2	3		4		5	
		Number	Percent	Number	Percent	Number	Percent
All levels	1040	94	9.0	682	65.6	264	25.4
Grade 7	31	2	6.4	23	74.2	6	19.3
Grade 8	85	7	8.2	64	75.3	14	16.4
Grade 9	242	11	4.5	154	63.6	77	31.8
Grade 10	226	5	2.1	154	68.4	67	29.6
Grade 11	227	24	10.6	153	67.0	50	21.6
Grade 12	229	45	19.7	134	58.5	50	22.0

[1] Figures may not add to total because some teachers gave multiple responses for different grade levels and because of rounding.

TABLE XXVIII Percent of industrial arts teachers in public secondary schools according to type of curriculum guide used, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total teachers	Type of curriculum guide used								
		Local school district guide			State curriculum guide			Curriculum guide from another State or local district		
		Total	Alone	In combination with others	Total	Alone	In combination with others	Total	Alone	In combination with others
	2	3	4	5	6	7	8	9	10	11
All sizes	371	15.9	12.4	3.5	14.0	8.6	5.4	3.3	1.1	2.2
2500 and over	5	20.0	20.0	--	--	--	--	--	--	--
1500 to 2499	39	28.2	17.9	10.3	5.2	2.6	2.6	2.6	--	2.6
1000 to 1499	72	12.3	12.3	--	9.5	4.1	5.4	2.7	2.7	--
750 to 999	74	17.8	11.0	6.8	22.0	15.1	6.9	2.8	--	2.8
500 to 749	84	13.1	10.7	2.4	9.6	6.0	3.6	4.8	1.2	3.6
400 to 499	29	17.2	13.8	3.4	24.0	10.3	13.7	3.4	--	3.4
300 to 399	26	15.4	15.4	--	11.5	11.5	--	3.8	3.8	--
200 to 299	22	9.1	9.1	--	32.0	18.2	13.8	--	--	--
100 to 199	15	20.0	13.3	6.7	6.7	6.7	--	6.7	--	6.7
1 to 99	5	--	--	--	20.0	20.0	--	--	--	--
All types	371	15.9	12.4	3.5	14.0	8.6	5.4	3.3	1.1	2.2
Junior-senior H.S.	104	12.2	9.5	2.7	14.2	7.6	6.6	4.7	1.9	2.8
Junior H.S.	96	22.9	17.7	5.2	7.3	6.3	1.0	2.0	1.0	1.0
Traditional H.S.	90	8.9	6.7	2.2	25.4	14.4	11.0	4.4	--	4.4
Senior H.S.	81	20.1	16.3	3.8	8.9	6.3	2.6	1.3	1.3	--

Notes: Percentages add up to more than 100 because of multiple use of guides. Detail may not add to total because of rounding.

TABLE XXVIII Percent of industrial arts teachers in public secondary schools according to type of curriculum guide used, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Total teachers	Type of curriculum guide used							
		Textbook			Guide prepared by teacher			None	Other
		Total	Alone	In combination with others	Total	Alone	In combination with others		
	2	12	13	14	15	16	17	18	19
All sizes	371	31.5	13.2	18.3	56.9	38.8	18.1	1.9	.8
2500 and over	5	80.0	40.0	40.0	40.0	--	40.0	--	--
1500 to 2499	39	46.1	25.6	20.5	43.6	25.6	18.0	--	--
1000 to 1499	72	35.6	15.1	20.5	61.6	43.8	17.8	1.4	--
750 to 999	74	24.7	9.6	15.1	54.9	42.5	12.4	--	1.4
500 to 749	84	27.4	9.5	17.9	66.7	45.2	21.5	2.4	--
400 to 499	29	30.9	6.9	24.0	58.5	34.5	24.0	--	3.4
300 to 399	26	23.0	3.8	19.2	53.8	34.6	19.2	7.7	3.8
200 to 299	22	36.6	22.8	13.8	45.7	31.9	13.8	--	--
100 to 199	15	20.0	13.3	6.7	60.1	40.0	20.1	--	--
1 to 99	5	40.0	20.0	20.0	40.0	20.0	20.0	20.0	--
All types	371	31.5	13.2	18.3	56.9	38.8	18.1	1.9	.8
Junior-senior H.S.	104	32.2	13.3	18.9	57.0	40.0	17.0	.9	--
Junior H.S.	96	25.9	9.4	16.5	60.3	40.6	19.7	2.1	1.0
Traditional H.S.	90	35.4	14.4	21.0	54.3	34.4	19.9	3.3	1.1
Senior H.S.	81	32.6	16.3	16.3	56.4	40.0	16.4	--	1.3

Notes: Percentages add up to more than 100 because of multiple use of guides. Detail may not add to total because of rounding.

TABLE XXIX Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in general industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total % of teachers teaching industrial arts	Teaching method used								
		Assign one project to the whole class			Divide the class into groups and assign different projects to each group			Students select a beginning project from a limited selection		
		Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
	2	3	4	5	6	7	8	9	10	11
All sizes	100	35.8	27.9	7.9	13.7	10.0	3.7	32.1	28.4	10.0
2500 and over	100	50.0	50.0	--	--	--	--	50.0	50.0	--
1500 to 2499	100	33.3	33.3	--	33.3	--	33.3	33.3	33.3	--
1000 to 1499	100	29.7	26.4	3.3	6.6	6.6	--	26.4	23.1	3.3
750 to 999	100	52.4	35.7	16.7	14.3	9.5	4.8	26.2	23.8	2.4
500 to 749	100	41.6	31.2	10.4	12.5	8.3	4.2	31.2	31.2	--
400 to 499	100	37.5	37.5	--	12.6	6.3	6.3	37.5	18.8	18.8
300 to 399	100	30.0	25.0	5.0	20.0	20.0	--	30.0	25.0	5.0
200 to 299	100	20.0	13.4	6.7	13.4	6.7	6.7	40.0	33.3	6.7
100 to 199	100	--	--	--	25.0	25.0	--	50.0	50.0	--
1 to 99	100	--	--	--	--	--	--	100.	100.	--
All types	100	35.8	27.9	7.9	13.7	10.0	3.7	32.1	28.4	3.7
Junior-senior H.S.	100	43.8	35.0	8.8	8.8	7.0	1.8	22.8	22.8	--
Junior H.S.	100	35.8	35.8	--	14.3	10.7	3.6	26.9	23.3	3.6
Traditional H.S.	100	26.0	16.0	10.0	22.0	16.0	6.0	38.0	32.0	6.0
Senior H.S.	100	22.2	18.5	3.7	7.4	3.7	3.7	51.7	44.3	7.4

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXIX Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in general industrial arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Teaching method used						Other methods
	Allow free selection of projects			Assign students series of sequential jobs or activities			
	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	
	12	13	14	15	16	17	18
All sizes	10.0	9.5	.5	7.4	5.3	2.1	1.1
2500 and over	--	--	--	--	--	--	--
1500 to 2499	--	--	--	--	--	--	--
1000 to 1499	19.8	19.8	--	16.5	13.2	3.3	--
750 to 999	4.8	2.4	2.4	--	--	--	2.4
500 to 749	8.3	8.3	--	4.2	--	4.2	2.1
400 to 499	6.3	6.3	--	6.3	--	6.3	--
300 to 399	15.0	15.0	--	5.0	5.0	--	--
200 to 299	6.7	6.7	--	20.0	20.0	--	--
100 to 199	8.3	8.3	--	16.6	16.6	--	--
1 to 99	--	--	--	--	--	--	--
All types	10.0	9.5	.5	7.4	5.3	2.1	1.1
Junior-senior H.S.	12.3	12.3	--	10.6	8.8	1.8	1.8
Junior H.S.	7.2	7.2	--	7.2	3.6	3.6	1.8
Traditional H.S.	8.0	8.0	--	6.0	4.0	2.0	--
Senior H.S.	14.8	11.1	3.7	3.7	3.7	--	--

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXX Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in general woods, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total % of teachers teaching industrial arts	Teaching method used								
		Assign one project to the whole class			Divide the class into groups and assign different projects to each group			Students select a beginning project from a limited selection		
		Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
	2	3	4	5	6	7	8	9	10	11
All sizes	100	31.2	21.0	10.2	5.4	4.4	1.0	36.6	28.3	8.3
2500 and over	100	16.7	--	16.7	--	--	--	--	--	--
1500 to 2499	100	8.3	8.3	--	4.2	4.2	--	41.7	16.6	8.3
1000 to 1499	100	26.4	15.9	10.5	2.6	2.6	--	47.3	28.9	18.4
750 to 999	100	46.6	32.6	14.0	4.7	2.3	2.3	28.0	21.0	7.0
500 to 749	100	40.8	27.2	13.6	2.3	2.3	--	38.6	38.6	--
400 to 499	100	40.0	20.0	20.0	10.0	--	10.0	20.0	--	20.0
300 to 399	100	18.8	18.8	--	12.5	12.5	--	25.0	25.0	--
200 to 299	100	21.4	21.4	--	21.4	21.4	--	42.8	21.4	21.4
100 to 199	100	--	--	--	--	--	--	--	--	--
1 to 99	100	50.0	--	50.0	--	--	--	25.0	25.0	--
All types	100	31.2	21.0	10.2	5.4	4.4	1.0	36.6	28.3	8.3
Junior-senior H.S.	100	31.5	21.5	10.0	8.9	5.7	2.9	37.9	30.0	7.2
Junior H.S.	100	40.5	26.2	14.3	4.8	4.8	--	33.3	19.0	14.3
Traditional H.S.	100	31.4	23.5	7.8	3.9	3.9	--	31.4	25.5	5.9
Senior H.S.	100	21.4	11.9	9.5	2.4	2.4	--	45.2	38.1	7.1

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXX Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in general woods, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Teaching method used						Other methods
	Allow free selection of projects			Assign students series of sequential jobs or activities			
	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	
	12	13	14	15	16	17	18
All sizes	23.4	22.9	.5	1.5	1.5	--	2.0
2500 and over	83.4	83.4	--	--	--	--	--
1500 to 2499	45.9	45.9	--	--	--	--	--
1000 to 1499	23.7	23.7	--	--	--	--	--
750 to 999	16.3	16.3	--	2.3	2.3	--	2.3
500 to 749	13.6	13.6	--	2.8	2.8	--	2.8
400 to 499	30.0	30.0	--	--	--	--	--
300 to 399	32.5	25.0	6.3	6.3	6.3	--	6.3
200 to 299	14.3	14.3	--	--	--	--	--
100 to 199	--	--	--	--	--	--	--
1 to 99	--	--	--	--	--	--	25.0
All types	23.4	22.9	.5	1.5	1.5	--	2.0
Junior-senior H.S.	20.0	18.6	1.4	1.4	1.4	--	1.4
Junior H.S.	11.9	11.9	--	2.4	2.4	--	7.1
Traditional H. S.	33.3	33.3	--	--	--	--	--
Senior H.S.	28.6	28.6	--	2.4	2.4	--	--

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXXI Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in general metals, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total % of teachers teaching industrial arts	Teaching method used								
		Assign one project to the whole class			Divide the class into groups and assign different projects to each group			Students select a beginning project from a limited selection		
		Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
	2	3	4	5	6	7	8	9	10	11
All sizes	100	19.7	17.1	2.6	13.2	13.2	--	40.8	39.5	1.3
2500 and over	100	100.	100.	--	--	--	--	--	--	--
1500 to 2499	100	--	--	--	40.0	40.0	--	20.0	20.0	--
1000 to 1499	100	15.4	15.4	--	--	--	--	53.9	53.9	--
750 to 999	100	28.7	28.7	--	7.1	7.1	--	35.7	35.7	--
500 to 749	100	23.5	11.8	11.8	5.9	5.9	--	41.2	41.2	--
400 to 499	100	20.0	20.0	--	--	--	--	40.0	40.0	--
300 to 399	100	--	--	--	80.0	80.0	--	20.0	20.0	--
200 to 299	100	--	--	--	--	--	--	100.	75.0	25.0
100 to 199	100	40.0	40.0	--	20.0	20.0	--	20.0	20.0	--
1 to 99	100	--	--	--	50.0	50.0	--	50.0	50.0	--
All types	100	19.7	17.1	2.6	13.2	13.2	--	40.8	39.5	1.3
Junior-senior H.S.	100	4.0	4.0	--	8.0	8.0	--	52.0	48.0	4.0
Junior H.S.	100	31.3	25.0	6.3	12.5	12.5	--	37.5	37.5	--
Traditional H.S.	100	30.5	26.1	4.4	21.8	21.8	--	39.6	39.6	--
Senior H.S.	100	16.6	16.6	--	8.3	8.3	--	25.0	25.0	--

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXXI Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in general metals, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Teaching method used						
	Allow free selection of projects			Assign students series of sequential jobs or activities			Other methods
	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	
	12	13	14	15	16	17	18
All sizes	15.8	14.5	--	7.9	7.9	--	2.6
2500 and over	--	--	--	--	--	--	--
1500 to 2499	20.0	20.0	--	20.0	20.0	--	--
1000 to 1499	15.4	15.4	--	7.7	7.7	--	7.7
750 to 999	14.3	14.3	--	7.1	7.1	--	7.1
500 to 749	17.6	11.8	5.9	11.8	11.8	--	--
400 to 499	30.0	30.0	--	10.0	10.0	--	--
300 to 399	--	--	--	--	--	--	--
200 to 299	--	--	--	--	--	--	--
100 to 199	20.0	20.0	--	--	--	--	--
1 to 99	--	--	--	--	--	--	--
All types	15.8	14.5	--	7.9	7.9	--	2.6
Junior-senior H.S.	20.0	16.0	4.0	12.0	12.0	--	4.0
Junior H.S.	6.3	6.3	--	6.3	6.3	--	6.3
Traditional H.S.	8.7	8.7	--	--	--	--	--
Senior H.S.	33.3	33.3	--	16.6	16.6	--	--

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXXII Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in graphic arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total % of teachers teaching industrial arts	Teaching method used								
		Assign one project to the whole class			Divide the class into groups and assign different projects to each group			Students select a beginning project from a limited selection		
		Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
	2	3	4	5	6	7	8	9	10	11
All sizes	100	26.6	24.4	2.2	4.4	4.4	--	6.7	4.4	2.2
2500 and over	100	--	--	--	--	--	--	--	--	--
1500 to 2499	100	10.0	--	10.0	10.0	10.0	--	--	--	--
1000 to 1499	100	57.1	57.1	--	--	--	--	--	--	--
750 to 999	100	--	--	--	--	--	--	16.7	--	16.7
500 to 749	100	37.5	37.5	--	--	--	--	12.5	12.5	--
400 to 499	100	33.3	33.3	--	--	--	--	--	--	--
300 to 399	100	25.0	25.0	--	25.0	25.0	--	--	--	--
200 to 299	100	20.0	20.0	--	--	--	--	--	--	--
100 to 199	100	--	--	--	--	--	--	100.	100.	--
1 to 99	100	100.	100.	--	--	--	--	--	--	--
All types	100	26.6	24.4	2.2	4.4	4.4	--	6.7	4.4	2.2
Junior-senior H.S.	100	25.0	25.0	--	16.7	16.7	--	8.3	8.3	--
Junior H.S.	100	50.0	50.0	--	--	--	--	7.1	--	7.1
Traditional H.S.	100	11.1	11.1	--	--	--	--	11.1	11.1	--
Senior H.S.	100	10.0	--	10.0	--	--	--	--	--	--

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXXII Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in graphic arts, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Teaching method used						Other methods
	Allow free selection of projects			Assign students series of sequential jobs or activities			
	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	
	12	13	14	15	16	17	18
All sizes	26.6	26.6	--	28.9	28.9	--	6.7
2500 and over	--	--	--	--	--	--	--
1500 to 2499	30.0	30.0	--	50.0	50.0	--	--
1000 to 1499	--	--	--	28.6	28.6	--	14.3
750 to 999	50.0	50.0	--	33.3	33.3	--	--
500 to 749	12.5	12.5	--	37.5	37.5	--	--
400 to 499	66.7	66.7	--	--	--	--	--
300 to 399	--	--	--	25.9	25.9	--	25.0
200 to 299	60.0	60.0	--	--	--	--	20.0
100 to 199	--	--	--	--	--	--	--
1 to 99	--	--	--	--	--	--	--
All types	26.6	26.6	--	28.9	28.9	--	6.7
Junior-senior H.S.	8.3	8.3	--	33.3	33.3	--	8.3
Junior H.S.	21.4	21.4	--	14.3	14.3	--	7.1
Traditional H.S.	55.6	55.6	--	11.1	11.1	--	11.1
Senior H.S.	30.0	30.0	--	60.0	60.0	--	--

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXXIII Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in electricity/electronics, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total % of teachers teaching Industrial Arts	Teaching method used								
		Assign one project to the whole class			Divide the class into groups and assign different projects to each group			Students select a beginning project from a limited selection		
		Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
	2	3	4	5	6	7	8	9	10	11
All sizes	100	20.9	16.1	4.8	8.1	8.1	--	25.8	17.7	8.1
2500 and over	100	--	--	--	--	--	--	--	--	--
1500 to 2499	100	33.3	33.3	--	33.3	33.3	--	33.3	33.3	--
1000 to 1499	100	10.0	10.0	--	--	--	--	30.0	30.0	--
750 to 999	100	25.0	8.3	16.7	--	--	--	25.0	--	25.0
500 to 749	100	25.0	16.7	8.3	8.3	8.3	--	16.7	16.7	--
400 to 499	100	--	--	--	--	--	--	--	--	--
300 to 399	100	16.7	16.7	--	50.0	50.0	--	--	--	--
200 to 299	100	--	--	--	--	--	--	83.3	50.0	33.3
100 to 199	100	25.0	25.0	--	--	--	--	50.0	50.0	--
1 to 99	100	--	--	--	--	--	--	--	--	--
All types	100	20.9	16.1	4.8	8.1	8.1	--	25.8	17.7	8.1
Junior-senior H.S.	100	11.2	5.6	5.6	11.2	11.2	--	33.3	16.7	16.7
Junior H.S.	100	20.0	10.0	10.0	--	--	--	30.0	10.0	20.0
Traditional H.S.	100	30.0	25.0	5.0	15.0	15.0	--	25.0	25.0	--
Senior H.S.	100	21.4	21.4	--	--	--	--	14.3	14.3	--

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXXIII Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in electricity/electronics, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Teaching method used						Other methods
	Allow free selection of projects			Assign students series of sequential jobs or activities			
	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	
	12	13	14	15	16	17	18
All sizes	13.9	11.3	1.6	27.8	27.8	--	4.8
2500 and over	--	--	--	--	--	--	--
1500 to 2499	--	--	--	--	--	--	--
1000 to 1499	10.0	--	10.0	10.0	10.0	--	10.0
750 to 999	33.3	33.3	--	16.7	16.7	--	--
500 to 749	8.3	8.3	--	41.5	41.5	--	--
400 to 499	33.3	33.3	--	66.7	6.7	--	--
300 to 399	--	--	--	16.7	16.7	--	16.7
200 to 299	--	--	--	--	--	--	16.7
100 to 199	--	--	--	25.0	25.0	--	--
1 to 99	--	--	--	--	--	--	--
All types	13.9	11.3	1.6	27.8	27.8	--	4.8
Junior-senior H.S.	5.6	5.6	--	27.8	27.8	--	11.2
Junior H.S.	10.0	10.0	--	30.0	30.0	--	10.0
Traditional H.S.	15.0	15.0	--	15.0	15.0	--	--
Senior H.S.	21.4	14.3	7.1	42.8	12.8	--	--

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXXIV Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in power mechanics, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total % of teachers teaching industrial arts	Teaching method used								
		Assign one project to the whole class			Divide the class into groups and assign different projects to each group			Students select a beginning project from a limited selection		
		Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
	2	3	4	5	6	7	8	9	10	11
All sizes	100	15.0	7.5	7.5	12.5	12.5	--	17.5	12.5	5.0
2500 and over	100	--	--	--	--	--	--	--	--	--
1500 to 2499	100	33.3	--	33.3	33.3	33.3	--	--	--	--
1000 to 1499	100	14.3	14.3	--	28.6	28.6	--	14.3	14.3	--
750 to 999	100	--	--	--	--	--	--	--	--	--
500 to 749	100	28.6	--	28.6	--	--	--	28.6	14.3	14.3
400 to 499	100	16.7	16.7	--	--	--	--	16.7	--	--
300 to 399	100	--	--	--	40.0	40.0	--	20.0	--	20.0
200 to 299	100	33.3	33.3	--	--	--	--	--	--	--
100 to 199	100	--	--	--	--	--	--	100.	100.	--
1 to 99	100	--	--	--	--	--	--	--	--	--
All types	100	15.0	7.5	7.5	12.5	12.5	--	17.5	12.5	5.0
Junior-senior H.S.	100	14.3	--	14.3	14.3	14.3	--	21.4	14.3	7.1
Junior H.S.	100	--	--	--	16.7	16.7	--	16.7	16.7	--
Traditional H.S.	100	23.1	23.1	--	15.4	15.4	--	15.4	7.7	7.7
Senior H.S.	100	14.3	--	14.3	--	--	--	14.3	14.3	--

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXXIV Percent of industrial arts teachers in public secondary schools using certain methods to initiate instruction in power mechanics, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Teaching method used						Other methods
	Allow free selection of projects			Assign students series of sequential jobs or activities			
	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	
	12	13	14	15	16	17	18
All sizes	20.0	20.0	--	22.5	22.5	--	12.5
2500 and over	--	--	--	--	--	--	--
1500 to 2499	--	--	--	33.3	33.3	--	--
1000 to 1499	--	--	--	14.3	14.3	--	28.6
750 to 999	57.1	57.1	--	42.8	42.8	--	--
500 to 749	14.3	14.3	--	14.3	14.3	--	14.3
400 to 499	33.3	33.3	--	33.3	33.3	--	--
300 to 399	20.0	20.0	--	--	--	--	20.0
200 to 299	--	--	--	33.3	33.3	--	33.0
100 to 199	--	--	--	--	--	--	--
1 to 99	--	--	--	--	--	--	--
All types	20.0	20.0	--	22.5	22.5	--	12.5
Junior-senior H.S.	14.3	14.3	--	21.4	21.4	--	14.3
Junior H.S.	16.7	16.7	--	33.3	33.3	--	16.7
Traditional H.S.	23.1	23.1	--	15.4	15.4	--	7.7
Senior H.S.	28.6	28.6	--	28.6	28.6	--	14.3

Note: Detail may not add to total because of rounding and multiple response.

TABLE XXXV Percent of industrial arts teachers in public secondary schools using certain teaching methods with students who have had no industrial arts but are scheduled in a 2d- or 3d-year class, by enrollment size and type of school, degree earned, years of teaching, and certification: Southern Appalachian Region, 1964-65.

Enrollment size and type of school, degree, years of teaching and certification	Total % of industrial arts teachers	Teaching method								
		Use more individual teacher's time			Use teaching aide (advanced student)			Use printed instructional materials		
		Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
1	2	3	4	5	6	7	8	9	10	11
All sizes	100	36.8	33.2	3.5	12.4	8.9	3.5	4.1	3.0	1.1
2500 and over	100	40.0	40.0	--	--	--	--	--	--	--
1500 to 2499	100	48.7	38.5	10.3	20.5	10.3	10.3	--	--	--
1000 to 1499	100	26.0	24.7	1.4	12.3	11.0	1.4	5.5	2.7	2.7
750 to 999	100	41.7	38.9	2.8	5.6	2.8	2.8	5.6	4.2	1.4
500 to 749	100	27.4	26.2	1.2	13.1	11.9	1.2	2.4	1.2	1.2
400 to 499	100	34.5	27.6	6.9	13.8	6.9	6.9	6.9	6.9	--
300 to 399	100	42.3	38.5	3.8	11.5	7.7	3.8	3.8	3.8	--
200 to 299	100	59.1	50.0	9.1	18.2	9.1	9.1	4.5	4.5	--
100 to 199	100	40.0	40.0	--	13.3	13.3	--	6.7	6.7	--
1 to 99	100	60.0	60.0	--	20.0	20.0	--	--	--	--
All types	100	36.8	33.2	3.5	12.4	8.9	3.5	4.1	3.0	1.1
Junior-senior H.S.	100	41.3	36.5	4.8	14.4	9.6	4.8	1.9	1.9	--
Junior H.S.	100	42.7	39.6	3.1	11.5	8.3	3.1	2.1	--	2.1
Traditional H.S.	100	25.6	24.4	1.1	10.0	8.9	1.1	4.4	4.4	--
Senior H.S.	100	36.2	31.3	5.0	13.7	8.7	5.0	8.7	6.3	2.5

Note: Percents add to more than total because of multiple responses.

TABLE XXXV Percent of industrial arts teachers in public secondary schools using certain teaching methods with students who have had no industrial arts but are scheduled in a 2d- or 3d-year class, by enrollment size and type of school, degree earned, years of teaching, and certification: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Teaching method								
	Make individual assignments in textbooks			Use teaching aide (adult)			Other methods		
	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
	12	13	14	15	16	17	18	19	20
All sizes	5.4	4.3	1.1	2.2	1.4	0.8	34.1	34.1	--
2500 and over	--	--	--	20.0	--	20.0	40.0	40.0	--
1500 to 2499	10.3	7.7	2.6	5.1	5.1	--	17.9	17.9	--
1000 to 1499	4.1	4.1	--	1.4	--	1.4	46.6	46.6	--
750 to 999	4.2	2.8	1.4	2.8	1.4	1.4	30.6	30.6	--
500 to 749	4.8	4.8	--	1.2	1.2	--	39.3	39.3	--
400 to 499	6.9	--	6.9	--	--	--	31.0	31.0	--
300 to 399	7.7	7.7	--	--	--	--	38.5	38.5	--
200 to 299	4.5	4.5	--	--	--	--	22.7	22.7	--
100 to 199	--	--	--	6.7	6.7	--	26.7	26.7	--
1 to 99	20.0	20.0	--	--	--	--	--	--	--
All types	5.4	4.3	1.1	2.2	1.4	0.8	34.1	34.1	--
Junior-senior H.S.	3.8	3.8	--	1.9	1.9	--	34.6	34.6	--
Junior H.S.	3.6	2.5	1.0	1.0	1.0	--	33.0	33.0	--
Traditional H.S.	8.9	6.7	2.2	2.2	1.1	1.1	36.7	36.7	--
Senior H.S.	2.5	1.2	1.2	3.7	1.2	2.5	31.3	31.3	--

Note: Percents add to more than total because of multiple responses.

TABLE XXXV Percent of industrial arts teachers in public secondary schools using certain teaching methods with students who have had no industrial arts but are scheduled in a 2d- or 3d-year class, by enrollment size and type of school, degree earned, years of teaching, and certification: Southern Appalachian Region, 1964-65--continued.

Degree, years of teaching and certification	Total % of industrial arts teachers	Teaching method								
		Use more individual teacher's time			Use teaching aide (advanced student)			Use printed instructional materials		
		Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
	2	3	4	5	6	7	8	9	10	11
All degrees	100	36.8	33.2	3.5	12.4	8.9	3.5	4.1	3.0	1.1
No degree	100	28.6	28.6	--	--	--	--	--	--	--
Associate degree	100	--	--	--	--	--	--	--	--	--
Bachelor's	100	36.0	31.6	4.3	13.8	9.5	4.3	4.0	3.2	0.8
Master's degree	100	40.0	38.1	1.9	10.5	8.6	1.9	3.8	2.9	1.0
Doctor's degree	--	--	--	--	--	--	--	--	--	--
Other	100	50.0	50.0	--	--	--	--	--	--	--
All years teaching indust. arts	100	36.8	33.2	3.5	12.4	8.9	3.5	4.1	3.0	1.1
1 year	100	22.2	22.2	--	18.5	18.5	--	3.7	3.7	--
2 to 3 years	100	40.6	39.1	1.4	8.7	7.2	1.4	4.3	2.9	1.4
4 to 5 years	100	33.3	28.6	4.8	11.9	7.1	4.8	4.8	2.4	2.4
6 to 10 years	100	36.0	32.0	4.0	10.0	6.0	4.0	4.0	3.0	1.0
11 to 15 years	100	43.6	41.0	2.6	15.4	12.8	2.6	--	--	--
16 to 20 years	100	25.9	22.2	3.7	18.5	14.8	3.7	3.7	--	3.7
21 years or more	100	43.1	36.9	6.2	13.8	7.7	6.2	6.2	6.2	--
All types of certificates	100	36.8	33.2	3.5	12.4	8.9	3.5	4.1	3.0	1.1
Regular or standard	100	35.4	32.1	3.3	11.8	8.5	3.3	4.3	3.0	1.3
Emergency or substitute	100	45.5	45.5	--	22.7	22.7	--	--	--	--

Note: Percents add to more than total because of multiple responses.

TABLE XXXV Percent of industrial arts teachers in public secondary schools using certain teaching methods with students who have had no industrial arts but are scheduled in a 2d- or 3d-year class, by enrollment size and type of school, degree earned, years of teaching, and certification: Southern Appalachian Region, 1964-65--continued.

Degree, years of teaching and certification	Teaching method								
	Make individual assignments in textbooks			Use teaching aide (adult)			Other methods		
	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
	12	13	14	15	16	17	18	19	20
All degrees	5.4	4.3	1.1	2.4	1.4	0.8	34.1	34.1	--
No degree	14.3	14.3	--	--	--	--	57.1	57.1	--
Associate degree	--	--	--	--	--	--	100.	100.	--
Bachelor's degree	5.9	4.3	1.6	1.6	1.2	0.4	36.0	36.0	--
Master's degree	3.8	3.8	--	3.8	1.9	1.9	26.7	26.7	--
Doctor's degree	--	--	--	--	--	--	--	--	--
Other	--	--	--	--	--	--	50.0	50.0	--
All years teaching industrial arts	5.4	4.3	1.1	2.2	1.4	0.8	34.1	34.1	--
1 year	--	--	--	--	--	--	48.1	48.1	--
2 to 3 years	7.2	7.2	--	--	--	--	30.4	30.4	--
4 to 5 years	9.5	7.1	2.4	2.4	2.4	--	35.7	35.7	--
6 to 10 years	2.0	2.0	--	4.0	3.0	1.0	36.0	36.0	--
11 to 15 years	10.3	2.6	7.7	2.6	--	2.6	23.1	23.1	--
16 to 20 years	--	--	--	3.7	--	3.7	44.4	44.4	--
21 or more years	7.7	7.7	--	1.5	1.5	--	29.2	29.2	--
All types of certificates	5.4	4.3	1.1	2.2	1.4	0.8	34.1	34.1	--
Regular or standard	5.2	4.6	0.7	2.3	1.3	1.0	35.7	35.7	--
Emergency or substitute	4.5	4.5	--	--	--	--	22.7	22.7	--

Note: Percents add to more than total because of multiple responses.

TABLE XXXVI Percent of industrial arts teachers in public secondary schools according to method of providing industrial arts supplies for students, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Method of providing industrial arts supplies								
	Supplies furnished free of charge to students			Students pay for what they use			Minimum fee charged for all students		
	Total 2	As only method 3	In combination with other methods 4	Total 5	As only method 6	In combination with other methods 7	Total 8	As only method 9	In combination with other methods 10
All sizes	4.6	4.6	--	38.0	36.9	1.1	24.1	21.3	2.8
2500 and over	--	--	--	--	--	--	20.0	20.0	--
1500 to 2499	10.3	10.3	--	46.1	41.0	5.1	10.3	7.7	2.6
1000 to 1499	4.1	4.1	--	42.4	39.7	2.7	27.4	26.0	1.4
750 to 999	1.4	1.4	--	28.8	28.8	--	35.6	31.5	4.1
500 to 749	4.8	4.8	--	32.1	32.1	--	19.1	13.1	6.0
400 to 499	--	--	--	48.3	48.3	--	27.5	24.1	3.4
300 to 399	7.7	7.7	--	34.6	34.6	--	26.9	26.9	--
200 to 299	9.9	9.9	--	54.5	54.5	--	9.9	9.9	--
100 to 199	--	--	--	26.7	26.7	--	26.7	26.7	--
1 to 99	20.0	20.0	--	40.0	40.0	--	20.0	20.0	--
All types	4.6	4.6	--	38.0	36.9	1.1	24.1	21.3	2.8
Junior-senior H.S.	9.5	9.5	--	40.9	40.9	--	18.2	15.2	2.9
Junior H.S.	5.2	5.2	--	29.2	29.2	--	31.2	27.1	4.1
Traditional H.S.	1.1	1.1	--	36.6	34.4	2.2	28.9	25.6	3.3
Senior H.S.	1.3	1.3	--	46.3	43.8	2.5	17.6	16.3	1.3

Note: Percents may not add to total because of rounding.

TABLE XXXVI Percent of industrial arts teachers in public secondary schools according to method of providing industrial arts supplies for students, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Method of providing industrial arts supplies					
	School provides some supplies free; students pay for additional supplies			Other methods		
	Total	As only method	In combination with other methods	Total	As only method	In combination with other methods
	11	12	13	14	15	16
All sizes	34.9	32.1	2.8	1.3	--	1.3
2500 and over	20.0	20.0	--	--	--	--
1500 to 2499	41.0	33.3	7.7	--	--	--
1000 to 1499	28.8	24.7	4.1	--	--	--
750 to 999	35.6	34.2	1.4	2.7	--	2.7
500 to 749	47.7	42.9	4.8	1.2	--	1.2
400 to 499	20.7	20.7	--	3.4	--	3.4
300 to 399	26.9	26.9	--	--	--	--
200 to 299	22.7	22.7	--	--	--	--
100 to 199	26.7	46.7	--	--	--	--
1 to 99	20.0	20.0	--	--	--	--
All types	34.9	32.1	2.8	1.3	--	1.3
Junior-senior H.S.	32.4	29.5	2.9	--	--	--
Junior H.S.	33.3	32.3	1.0	3.1	--	3.1
Traditional H.S.	37.7	33.3	4.4	1.1	--	1.1
Senior H.S.	37.6	33.8	3.8	--	--	--

Note: Percents may not add to total because of rounding.

TABLE XXXVII Number and percent of teachers reporting significant changes in industrial arts courses in public secondary schools, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total teachers who taught industrial arts last year	Significant course change											
		New courses for --						Industrial arts integrated or related to					
		Upper ability		General courses		Slow students		Home making		Art		Science	
		3		4		5		6		7		8	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	371	28	7.5	23	6.2	6	1.6	6	1.6	11	3.0	17	4.6
2500 and over	5	--	--	--	--	--	--	--	--	--	--	--	--
1500 to 2499	39	2	5.1	--	--	--	--	--	--	1	2.6	--	--
1000 to 1499	74	7	9.1	7	9.1	1	1.4	1	1.4	2	2.7	1	1.4
750 to 999	72	5	6.8	4	5.5	--	--	2	2.7	5	6.9	8	11.0
500 to 749	84	2	2.4	9	10.7	--	--	1	1.2	--	--	3	3.6
400 to 499	29	4	13.8	3	10.3	2	6.9	1	3.4	2	6.9	1	3.4
300 to 399	26	5	19.2	--	--	2	7.7	--	--	--	--	1	3.8
200 to 299	22	1	4.8	--	--	--	--	1	4.8	--	--	--	--
100 to 199	15	2	13.3	--	--	1	6.7	--	--	1	6.7	3	20.0
1 to 99	5	--	--	--	--	--	--	--	--	--	--	--	--
All types	371	28	7.5	23	6.2	6	1.6	6	1.6	11	3.0	17	4.6
Junior-Senior H.S.	104	8	7.7	8	7.7	2	1.9	2	1.9	2	1.9	4	3.8
Junior H.S.	96	1	1.0	4	4.2	2	2.1	1	1.0	4	4.2	8	8.3
Traditional H.S.	90	14	15.6	9	10.0	2	2.2	3	3.3	2	2.2	4	4.4
Senior H.S.	81	5	6.2	2	2.4	--	--	--	--	3	3.7	1	1.2

Notes: Percent may add to more than 100 because of multiple response. Detail may not add to total due to rounding.

TABLE XXXVII Number and percent of teachers reporting significant changes in industrial arts courses in public secondary schools, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Significant course change							
	Major revision to include new instructional areas		Conducted work experience program		Other change		No change	
	9		10		11		12	
	No.	%	No.	%	No.	%	No.	%
All sizes	37	10.0	12	3.2	11	3.0	229	61.7
2500 and over	--	--	--	--	--	--	5	100.
1500 to 2499	3	7.7	--	--	3	7.7	31	79.5
1000 to 1499	8	10.8	2	2.7	1	1.4	43	58.9
750 to 999	10	13.9	4	5.5	2	2.7	38	52.1
500 to 749	6	7.1	3	3.6	2	2.4	58	69.0
400 to 499	3	10.3	1	3.4	1	3.4	12	41.4
300 to 399	5	19.2	1	3.8	--	--	15	57.7
200 to 299	2	9.5	--	--	--	--	14	63.6
100 to 199	--	--	1	6.7	1	6.7	9	60.0
1 to 99	--	--	--	--	1	20.0	4	80.0
All Types	37	10.0	12	3.2	11	3.0	229	61.7
Junior-senior H.S.	11	10.6	4	3.8	2	1.9	60	57.7
Junior H.S.	5	5.2	3	3.1	2	2.1	68	70.8
Traditional H.S.	15	16.7	4	4.4	1	1.1	46	51.1
Senior H.S.	6	7.5	1	1.3	6	7.4	55	69.1

Notes: Percent may add to more than 100 because of multiple response. Detail may not add to total due to rounding.

TABLE XXXVIII Teaching problems and their mean degree of difficulty for industrial arts teachers in public secondary schools, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Teaching problems and degree of difficulty[1]						
	Meeting individual differences				Improving general teaching ability		
	Finding time for helping individual pupils	Providing for the superior pupil	Handling students who have not had previous industrial arts exper.	Providing for the slow learners	Improving ability to present industrial concepts in interesting manner	Knowing how to teach problem solving	Finding adequate preparation time for experiments and demonstrations
	2	3	4	5	6	7	8
All sizes	1.9	1.9	1.6	1.9	1.8	1.6	2.2
2500 and over	1.5	2.5	1.8	1.5	1.8	1.5	2.3
1500 to 2499	1.8	1.5	1.5	1.8	1.6	1.5	2.0
1000 to 1499	2.0	1.9	1.5	2.0	1.7	1.6	2.2
750 to 999	2.0	1.6	1.6	1.9	1.7	1.6	2.9
500 to 749	1.8	1.8	1.5	1.9	1.8	1.5	2.1
400 to 499	2.0	1.8	1.5	2.0	1.6	1.5	2.3
300 to 399	2.3	2.0	1.7	2.2	2.0	1.6	2.4
200 to 299	2.0	1.7	1.5	1.9	1.6	1.5	2.2
100 to 199	1.7	1.9	1.5	1.9	1.5	1.7	1.9
1 to 99	2.0	2.5	1.7	2.2	2.3	1.8	2.0
All types	1.9	1.9	1.6	1.9	1.8	1.6	2.2
Junior-senior H.S.	1.9	1.8	1.5	1.8	1.7	1.5	2.0
Junior H.S.	2.0	1.7	1.6	2.0	1.8	1.6	2.1
Traditional H.S.	1.9	1.7	1.5	2.1	1.6	1.6	2.1
Senior H.S.	1.9	1.8	1.5	2.0	1.7	1.6	2.2

[1] Key: 3 = high degree of difficulty; 2 = medium degree; and 1 = low degree.

TABLE XXXVIII Teaching problems and their mean degree of difficulty for industrial arts teachers in public secondary schools, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Teaching problem and degree of difficulty[1]						
	Improving General teaching ability		Developing technical skills			Obtaining teaching materials	
	Improving related lessons and/or demonstrations	Arranging and conducting field trips	Acquiring an adequate degree of manipulative skills	Improving simple equipment	Keeping equipment in good repair	Securing an effective textbook	Obtaining and using visual aids
	9	10	11	12	13	14	15
All sizes	1.7	2.3	1.7	1.5	2.0	2.0	1.9
2500 and over	1.3	3.0	1.3	1.8	2.5	2.4	2.4
1500 to 2499	1.6	2.3	1.8	1.5	1.9	1.4	1.8
1000 to 1499	1.9	2.0	1.7	1.5	2.0	1.8	1.8
750 to 999	1.7	2.0	1.6	1.4	1.8	2.0	1.9
500 to 749	1.6	2.1	1.6	1.4	1.8	2.2	2.0
400 to 499	1.7	2.3	1.7	1.4	1.9	1.6	1.8
300 to 399	1.5	2.4	1.8	1.4	2.2	2.0	1.7
200 to 299	1.5	2.0	1.9	1.4	1.7	2.1	1.9
100 to 199	1.8	2.5	1.9	1.9	1.8	2.1	1.6
1 to 99	2.0	2.5	2.0	1.5	2.0	2.5	2.0
All types	1.7	2.3	1.7	1.5	2.0	2.0	1.9
Junior-senior H.S.	1.6	2.0	1.6	1.4	1.8	1.5	2.0
Junior H.S.	1.7	2.2	1.8	1.5	1.9	2.0	1.8
Traditional H.S.	1.5	2.2	1.6	1.4	1.9	1.8	1.8
Senior H.S.	1.9	2.4	1.6	1.5	2.0	1.9	2.0

[1] Key: 3 = high degree of difficulty; 2 = medium degree; and 1 = low degree.

TABLE XXXVIII Teaching problems and their mean degree of difficulty for industrial arts teachers in public secondary schools, by enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Teaching problem and degree of difficulty[1]						
	Obtaining teaching materials			Keeping up to date			
	Providing career guidance materials in industry	Supplying supplementary problem materials	Finding good industrial arts projects	Getting improved library facilities	Acquiring and teaching new or modern concepts of industry	Keeping up with advances in technology	Explaining industrial arts to the lay public
	16	17	18	19	20	21	22
All sizes	2.0	1.7	1.8	2.0	2.0	2.1	1.9
2500 and over	1.8	1.3	2.0	2.0	2.0	1.8	1.8
1500 to 2499	2.1	1.5	1.6	1.6	1.8	1.9	1.9
1000 to 1499	1.9	1.6	1.6	1.7	1.9	2.0	2.1
750 to 999	2.2	1.8	1.8	1.9	1.9	2.0	1.8
500 to 749	2.0	1.9	1.6	1.9	2.0	2.2	1.8
400 to 499	2.3	1.7	1.6	1.9	2.1	2.2	2.0
300 to 399	1.3	1.9	1.7	2.2	2.0	2.2	2.0
200 to 299	2.3	1.7	1.9	2.0	2.7	2.0	2.2
100 to 199	1.9	1.8	1.6	2.1	2.0	2.0	1.8
1 to 99	2.5	2.0	2.4	2.5	1.8	2.3	2.0
All types	2.0	1.7	1.8	2.0	2.0	2.1	1.9
Junior-senior H.S.	2.1	1.7	1.7	1.9	1.9	2.1	1.7
Junior H.S.	2.1	1.7	1.6	1.8	2.1	2.2	1.9
Traditional H.S.	2.0	1.6	1.7	1.8	1.8	1.9	2.0
Senior H.S.	2.0	1.9	1.7	2.0	2.0	2.0	2.1

[1] Key: 3 = high degree of difficulty; 2 = medium degree; and 1 = low degree.

TABLE XXXIX Number and percent of industrial arts classes in public secondary schools, by type of course and by number of weeks in session: Southern Appalachian Region, 1964-65.

Courses	Total number of industrial arts classes	Mean	Median	Number of classes by number of weeks in session					
				Under 17 weeks		18 to 35 weeks		36 to 40 weeks	
		2	3	4		5		6	
				No.	%	No.	%	No.	%
All courses	1850	35.7	36.9	103	5.5	193	10.4	1556	84.1
General industrial arts	749	35.9	37.1	21	2.8	85	11.3	643	85.9
Drafting	478	34.6	36.8	33	6.9	51	10.6	394	82.5
Woodworking	369	35.4	36.0	22	6.0	28	7.7	321	86.9
Metalworking	81	28.4	34.7	25	30.8	5	6.5	51	62.7
Crafts	54	34.3	35.3	--	--	18	33.3	36	66.7
Graphic Arts	40	38.0	40.0	--	--	--	--	40	100.
Electricity/electronics	36	35.3	37.8	2	5.6	2	5.6	32	88.8
Power mechanics	30	36.5	38.1	--	--	4	13.6	26	86.4
Other	13	38.0	38.0	--	--	--	--	13	100.

Note: Detail may not add to total due to rounding.

TABLE XL Mean percent of classtime devoted to laboratory work in certain industrial arts courses in public secondary schools, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Courses	Enrollment size										Type of school			
	2500 and over	1500 to 2499	1000 to 1499	750 to 999	500 to 749	400 to 499	300 to 399	200 to 299	100 to 199	1 to 99	Junior-senior high school	Junior high school	Traditional high school	Senior high school
	2	3	4	5	6	7	8	9	10	11	12	13	14	15
General industrial arts	80.0	72.7	74.6	72.2	75.7	74.1	73.8	73.7	71.2	70.0	73.7	75.9	70.8	73.2
Woodworking	83.2	77.9	72.7	77.0	76.2	76.8	74.3	73.4	77.2	71.9	75.8	74.4	72.7	80.7
Drafting	67.4	78.3	79.1	72.7	84.3	77.6	73.3	71.5	78.6	67.5	77.3	80.6	73.7	74.3
Metalworking	70.0	71.3	63.0	77.5	76.7	--	77.5	--	80.0	--	70.4	54.3	65.8	76.2
Graphic arts	--	84.2	87.8	--	85.0	--	75.0	--	--	--	87.5	89.7	--	80.3
Electricity/electronics	--	50.0	10.0	68.1	61.0	72.5	26.7	10.0	70.0	--	63.6	66.5	36.1	50.0
Crafts	--	99.0	79.6	81.7	70.7	74.1	85.0	--	88.0	--	79.2	79.7	72.2	90.6
Power/auto mechanics	--	66.3	47.9	37.5	75.0	41.7	85.0	--	--	--	75.8	50.0	38.3	57.7

TABLE XLI Percent of selected industrial arts courses in public secondary schools by number of weeks, days per week, and periods per day taught: Southern Appalachian Region, 1964-65.

Name of courses	Number of weeks				Days per week					Periods per day				
	All classes	17 and under	18 to 35	36 and over	1	2	3	4	5	1	2	3	4	5 and over
	2	3	4	5	6	7	8	9	10	11	12	13	14	15
All classes	1850	5.5	10.4	84.1	.1	5.2	6.2	1.2	86.6	94.3	1.9	.4	.6	2.4
General industrial arts	749	2.8	11.2	85.9	0.1	4.9	6.9	0.6	87.5	95.8	2.1	--	0.6	1.2
Drafting	478	6.9	10.6	82.5	--	4.4	5.4	2.7	87.6	93.7	2.1	0.6	0.2	3.0
Woodworking	369	6.0	7.2	86.9	--	3.0	5.5	0.4	91.2	92.7	1.6	1.4	1.9	2.5
Metalworking	81	30.8	6.5	62.7	--	29.6	14.8	--	56.5	91.5	1.2	--	--	7.4
Crafts	54	--	33.3	66.7	--	7.4	--	7.4	85.2	98.1	--	--	--	1.9
Graphic art	40	--	--	100.	--	--	--	--	100.	95.0	5.0	--	--	--
Electricity/electronics	36	5.6	5.6	88.8	--	--	13.9	--	86.1	97.2	2.8	--	--	--
Power mechanics	30	--	13.6	86.4	3.3	--	--	--	96.7	80.0	--	--	--	20.0
Other	13	--	--	100.	--	9.1	--	--	89.9	100.	--	--	--	--

Note: Detail may not add to total due to rounding.

TABLE XLII Number and percent of industrial arts courses in public secondary schools, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	General industrial arts 2		Drafting 3		Wood-working 4		Metal working 5		Crafts 6		Graphic arts 7		Electricity/Electronics 8		Power mechanics 9		Other 10	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	749	40.5	478	25.5	369	19.9	81	4.4	54	2.9	40	2.1	36	1.9	30	1.6	13	0.7
2500 and over	5	0.3	9	0.5	9	0.5	1	0.1	--	--	--	--	--	--	--	--	--	--
1500 to 2499	15	0.8	69	3.7	8	0.4	15	0.8	2	0.1	17	0.9	4	0.2	15	0.8	2	0.1
1000 to 1499	118	6.4	114	6.1	11	0.6	36	1.9	31	1.6	21	1.1	2	0.1	7	0.4	1	0.1
750 to 999	175	9.5	88	4.5	27	1.5	10	0.5	3	0.2	--	--	8	0.4	2	0.1	--	--
500 to 749	209	11.1	111	6.0	14	0.8	15	0.8	5	0.3	1	0.1	12	0.7	2	0.1	6	0.3
400 to 499	64	3.5	25	1.3	44	2.4	--	--	--	--	--	--	4	0.2	3	0.1	--	--
300 to 399	70	3.8	33	1.6	79	4.3	2	0.1	8	0.4	1	0.1	3	0.2	1	0.1	1	0.1
200 to 299	56	3.0	19	1.0	79	4.3	--	--	--	--	--	--	1	0.1	--	--	3	0.2
100 to 199	32	1.6	8	0.5	63	3.4	2	0.1	5	0.3	--	--	2	0.1	--	--	--	--
1 to 99	5	0.3	2	0.1	35	1.9	--	--	--	--	--	--	--	--	--	--	--	--
All types	749	40.5	478	25.5	369	19.9	81	4.4	54	2.9	40	2.1	36	1.9	30	1.6	13	0.7
Junior-senior H.S.	198	10.7	108	5.8	112	6.0	12	0.7	6	0.3	6	0.3	13	0.7	6	0.3	3	0.2
Junior H.S.	279	14.6	109	5.9	82	4.4	25	1.3	31	1.6	19	1.0	10	.5	1	0.1	5	0.3
Traditional H.S.	152	8.2	132	7.1	85	4.6	31	1.6	9	0.5	--	--	9	.5	5	0.3	4	0.2
Senior H.S.	120	6.5	129	7.0	90	4.9	13	0.7	8	0.4	15	.8	4	.2	17	1.9	1	0.1

Note: Detail may not add to total due to rounding.

TABLE XLIII Number and percent of boys and girls enrolled in all industrial arts courses in public secondary schools, by grade level and enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Enrollment					Grade level									
						7						8			
	Total	Boys		Girls		Total		Boys		Girls		Total		Boys		Girls	
	2	3		4		5		6		7		8		9		10	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	32879	32497	98.8	382	1.2	4033	12.2	4017	12.2	16	0.1	6225	19.0	6225	19.0	--	--
2500 and over	381	381	100.	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1500 to 2499	3644	3603	98.9	41	1.1	143	3.9	143	3.9	--	--	5	0.1	5	0.1	--	--
1000 to 1499	7285	7220	99.0	65	1.0	423	5.8	422	5.8	1	--	1303	17.9	1303	17.9	--	--
750 to 999	7138	7062	98.9	76	1.1	756	10.6	756	10.6	--	--	1539	21.6	1539	21.6	--	--
500 to 749	7383	7302	98.9	81	1.1	1448	19.9	1448	19.9	--	--	1789	24.2	1789	24.2	--	--
400 to 499	2272	2222	97.8	50	2.2	219	9.7	219	9.7	--	--	376	16.5	376	16.5	--	--
300 to 399	2138	2106	98.4	32	1.5	421	19.7	421	19.7	--	--	472	21.6	472	21.6	--	--
200 to 299	1563	1538	98.4	25	1.6	259	16.6	244	15.7	15	0.9	531	33.9	531	33.9	--	--
100 to 199	909	897	98.7	12	1.3	330	36.3	330	36.3	--	--	153	16.8	153	16.8	--	--
1 to 99	166	166	100.	--	--	34	26.6	34	26.6	--	--	57	34.3	57	34.3	--	--
All types	32879	32497	98.8	382	1.2	4033	12.2	4017	12.2	16	0.1	6225	19.0	6225	19.0	--	--
Junior-senior H.S.	9501	9386	98.7	115	1.3	1090	11.5	1074	11.3	16	0.2	2262	23.8	2262	23.8	--	--
Junior H.S.	9482	9462	99.8	20	0.2	2943	31.0	2943	31.0	--	--	3963	41.8	3963	41.8	--	--
Traditional H.S.	6957	6822	98.1	135	1.9	--	--	--	--	--	--	--	--	--	--	--	--
Senior H.S.	6939	6827	98.4	112	1.6	--	--	--	--	--	--	--	--	--	--	--	--

TABLE XLIII Number and percent of boys and girls enrolled in all industrial arts courses in public secondary schools, by grade level and enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Grade level											
	9						10					
	Total		Boys		Girls		Total		Boys		Girls	
	11		12		13		14		15		16	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	6907	21.0	6872	20.9	35	0.1	5549	16.9	5456	16.6	93	0.3
2500 and over	--	--	--	--	--	--	149	39.1	149	39.1	--	--
1500 to 2499	291	7.9	289	7.9	2	0.1	1021	27.9	1016	27.8	5	0.1
1000 to 1499	1707	23.4	1707	23.4	--	--	1353	18.6	1335	18.4	18	0.2
750 to 999	1502	21.0	1483	20.7	19	0.3	1361	19.1	1324	18.5	37	0.5
500 to 749	1851	25.1	1848	25.1	3	--	818	11.4	807	11.2	11	0.2
400 to 499	489	21.5	489	21.5	--	--	367	16.2	359	15.8	8	0.4
300 to 399	458	21.4	458	21.4	--	--	210	9.8	201	9.4	9	0.4
200 to 299	370	23.7	369	23.6	1	0.1	168	10.7	165	10.6	3	0.1
100 to 199	173	19.0	163	17.9	10	1.1	98	10.8	96	10.6	2	0.2
1 to 99	66	33.7	66	33.7	--	--	4	2.4	4	2.4	--	--
All types	6907	21.0	6872	20.9	35	0.1	5549	16.9	5456	16.6	93	0.3
Junior-Senior H.S.	1709	18.0	1707	18.0	2	--	1533	16.1	1517	16.0	16	0.2
Junior H.S.	2576	27.2	2556	27.2	20	0.2	--	--	--	--	--	--
Traditional H.S.	2155	31.0	2144	30.8	11	0.2	1721	24.7	1663	23.9	58	0.8
Senior H.S.	467	6.7	465	6.7	2	--	2295	33.1	2276	32.8	19	0.3

TABLE XLIII Number and percent of boys and girls enrolled in all industrial arts courses in public secondary schools, by grade level and enrollment size and type of school: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Grade level											
	11						12					
	Total		Boys		Girls		Total		Boys		Girls	
	17		18		19		20		21		22	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	5397	16.4	5321	16.2	76	0.2	4768	14.5	4606	14.0	162	0.5
2500 and over	151	39.6	151	39.6	--	--	81	21.0	81	21.0	--	--
1500 to 2499	1034	28.4	1027	28.2	7	0.2	1150	31.6	1123	30.8	27	.7
1000 to 1499	1379	18.8	1369	18.7	10	0.1	1120	15.4	1084	14.9	36	0.5
750 to 999	1127	15.7	1126	15.7	1	--	853	12.0	834	11.7	19	0.3
500 to 749	744	10.4	727	10.1	17	.3	733	9.9	683	9.3	50	0.7
400 to 499	464	20.4	442	19.5	22	0.9	357	15.7	337	14.8	20	0.9
300 to 399	280	13.1	265	12.4	15	0.7	297	13.9	289	13.6	8	0.3
200 to 299	145	9.3	141	9.0	4	0.3	90	5.7	88	5.6	2	0.1
100 to 199	68	7.5	68	7.5	--	--	87	9.6	87	9.0	--	--
1 to 99	5	3.6	5	3.6	--	--	--	--	--	--	--	--
All types	5397	16.4	5321	16.2	76	0.2	4768	14.5	4606	14.0	162	0.5
Junior-Senior H.S.	1604	16.9	1577	16.6	27	0.3	1303	13.7	1249	13.1	54	0.6
Junior H.S.	--	--	--	--	--	--	--	--	--	--	--	--
Traditional H.S.	1650	23.7	1625	23.4	25	0.4	1431	20.6	1390	19.9	41	0.6
Senior H.S.	2143	30.9	2119	30.6	24	0.3	2034	29.3	1967	28.4	67	0.9

Note: Detail may not add to total because of rounding.

TABLE XLIV Number and percent of boys and girls enrolled in industrial arts courses in public secondary schools, by grade level: Southern Appalachian Region, 1964-65.

Enrollment size and type	Enrollment					Grade level											
						7						8					
	Total	Boys		Girls		Total		Boys		Girls		Total		Boys		Girls	
	2	3		4		5		6		7		8		9		10	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All courses	32879	32497	98.8	382	1.2	4033	12.3	4017	12.2	16	0.1	6225	19.0	6225	19.0	--	--
General industrial arts	12915	12824	99.3	91	0.7	1790	13.9	1775	13.8	15	0.1	3140	24.3	3140	24.3	--	--
Woodworking	6572	6559	99.8	13	0.2	528	8.0	528	8.0	--	--	1133	17.2	1133	17.2	--	--
Drafting	9216	9041	98.1	175	1.9	1086	11.6	1086	11.6	--	--	727	7.9	727	7.9	--	--
Metalworking	1370	1368	99.8	2	0.2	316	22.3	315	22.3	1	0.1	542	39.6	542	39.6	--	--
Graphic arts	646	640	99.1	6	.9	108	16.8	108	16.8	--	--	114	17.7	114	17.7	--	--
Electricity/ electronics	550	548	99.6	2	.4	21	3.6	21	3.6	--	--	73	13.3	73	13.3	--	--
Crafts	936	853	81.1	84	18.9	184	19.7	184	19.7	--	--	483	51.5	483	51.5	--	--
Power mechanics	487	479	98.3	8	1.7	--	--	--	--	--	--	13	2.7	13	2.7	--	--
Other	186	185	99.5	1	0.5	--	--	--	--	--	--	--	--	---	--	--	--

TABLE XLIV Number and percent of boys and girls enrolled in industrial arts courses in public secondary schools, by grade level: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Grade level											
	9						10					
	Total		Boys		Girls		Total		Boys		Girls	
	11		12		13		14		15		16	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All courses	6907	21.0	6872	20.9	35	0.1	5549	16.9	5456	16.6	93	0.3
General industrial arts	3618	28.0	3609	27.9	9	0.1	1867	14.5	1854	14.4	13	0.1
Woodworking	1264	19.2	1264	19.2	--	--	1552	23.6	1549	23.6	3	--
Drafting	1493	16.2	1480	16.1	13	0.1	1542	16.6	1505	16.2	37	0.4
Metalworking	167	12.2	167	12.2	--	--	167	12.2	167	12.2	--	--
Graphic arts	114	17.7	114	17.7	--	--	88	13.7	88	13.7	--	--
Electricity/electronics	146	26.5	144	26.1	2	.4	126	22.9	126	22.9	--	--
Crafts	34	3.5	23	2.4	11	1.1	92	9.8	52	5.5	40	4.3
Power mechanics	7	1.4	7	1.4	--	--	103	21.2	103	21.2	--	--
Other	64	34.4	64	34.4	--	--	12	6.5	12	6.5	--	--

TABLE XLIV Number and percent of boys and girls enrolled in industrial arts courses in public secondary schools, by grade level: Southern Appalachian Region, 1964-65--continued.

Enrollment size and type	Grade level											
	11						12					
	Total		Boys		Girls		Total		Boys		Girls	
	17		18		19		20		21		22	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All courses	5397	16.4	5321	16.2	76	0.2	4768	14.5	4606	14.0	162	0.5
General industrial arts	1384	10.7	1360	10.5	24	0.2	1116	8.6	1086	8.4	30	0.2
Woodworking	1269	19.3	1266	19.3	3	--	826	12.6	819	12.5	7	0.1
Drafting	2074	22.5	2037	22.1	37	0.4	2294	24.9	2206	23.9	88	1.0
Metalworking	81	5.9	81	5.9	--	--	97	7.1	96	7.0	1	0.1
Graphic arts	125	19.4	119	18.8	6	.9	97	15.1	97	15.1	--	--
Electircity/electronics	127	23.1	127	23.1	--	--	57	10.4	57	10.4	--	--
Crafts	40	4.3	36	3.9	4	0.4	104	11.1	75	8.0	29	3.1
Power mechanics	199	40.9	198	40.7	1	.2	165	33.7	158	32.5	7	1.2
Other	98	52.7	97	52.2	1	0.5	12	6.5	12	6.5	--	--

Note: Detail may not add to total due to rounding.

TABLE XLV Percent of subject and instructional areas included in industrial arts courses in public secondary schools: Southern Appalachian Region, 1964-65.

Subject and instructional areas	Industrial arts courses								
	General Industrial Arts	General woods	Drafting	General metals	Graphic arts	Electricity/ electronics	Crafts	Power mechanics	Other
	2	3	4	5	6	7	8	9	10
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Drafting	13.9	15.5	92.0	17.3	--	1.6	17.1	3.4	21.6
Lettering	2.6	1.2	16.4	3.2	--	.4	4.2	1.7	3.2
Sketching	4.4	6.4	11.8	1.7	--	--	4.4	1.7	4.0
Machine drawing	1.3	1.1	17.4	1.3	--	.4	1.9	--	2.4
Design	2.5	4.7	6.0	10.5	--	--	2.3	--	3.2
Sheet metal drawing	.9	.4	7.3	.2	--	.4	1.6	--	2.4
Blueprinting	.6	.2	6.0	.2	--	--	--	--	3.2
Architectural drawing	.4	.5	8.9	.4	--	--	--	--	--
Engineering drawing	.4	.2	7.3	--	--	--	3.2	--	2.4
Maps, graphs & charts	.2	.5	3.1	--	--	--	--	--	.8
Electrical drawing	.4	.1	2.9	--	--	.4	--	--	--
Aviation drawing	.1	--	.6	--	--	--	--	--	--
Structural drawing	.1	.2	4.4	--	--	--	--	--	--
Woodworking	33.7	75.0	2.1	3.8	--	8.4	15.1	6.6	15.2
Finishing	7.4	16.4	.6	1.3	--	6.4	6.5	4.9	4.0
Furniture making	6.6	14.3	.6	1.3	--	.4	4.0	--	3.2
Cabinet making	3.2	10.4	--	.4	--	.4	.2	--	.8
Carpentry	6.9	6.5	.2	.2	--	.4	2.1	--	.8
Carving	1.0	2.4	.1	--	--	--	--	1.7	--
Woodturning	3.5	13.7	.3	.2	--	.4	1.9	--	2.4
Upholstering	.6	1.0	--	--	--	.4	.8	--	.8
Construction	2.3	5.8	.1	.2	--	--	1.0	--	--
Millwork	.8	2.4	--	--	--	--	--	--	3.2
Patternmaking	1.5	2.1	.2	.2	--	--	--	--	--
Metalworking	16.2	1.6	3.5	77.5	--	--	4.4	19.6	14.4
Art metal	2.6	.5	.4	3.2	--	--	2.3	--	.8
Sheet metal	3.3	.7	.6	15.2	--	--	--	4.9	.4
Bench metal	2.4	.3	--	10.5	--	--	.2	9.8	--
Jewelry	.4	--	.7	.2	--	--	.4	--	--
Machine shop	1.1	--	.5	6.1	--	--	.8	4.9	2.4
Etching	1.2	--	.1	2.7	--	--	.2	--	3.2
Heat treating	.5	--	.2	7.6	--	--	.2	--	--

TABLE XLV Percent of subject and instructional areas included in industrial arts courses in public secondary schools: Southern Appalachian Region, 1964-65--continued.

Subject and instructional areas	Industrial arts courses								
	General industrial arts	General woods	Drafting	General metals	Graphic arts	Electricity/ electronics	Crafts	Power mechanics	Other
	2	3	4	5	6	7	8	9	10
Graphic arts	1.3	.4	--	--	100.0	--	2.9	--	--
Letter press printing	.3	.4	--	--	23.4	--	--	--	--
Block printing	.1	--	--	--	18.0	--	.8	--	--
Silk screening	.4	--	--	--	--	--	1.0	--	--
Printing industries	.1	--	--	--	18.0	--	--	--	--
Bookbinding	--	--	--	--	6.9	--	.6	--	--
Etching	.1	--	--	--	--	--	--	--	--
Photography	.1	--	--	--	4.1	--	--	--	--
Offset	.1	--	--	--	9.3	--	--	--	--
Paper making	.1	--	--	--	9.3	--	--	--	--
Rubber stamp making	--	--	--	--	.6	--	--	--	--
Engraving	--	--	--	--	--	--	.6	--	--
Ink making	--	--	--	--	10.5	--	--	--	--
Handicrafts	1.3	.9	--	--	--	4.8	2.5	--	1.6
Model building	.6	--	--	--	--	.4	--	--	1.6
Flocking	.1	--	--	--	--	2.0	1.0	--	--
Bait making	--	--	--	--	--	.4	.4	--	--
Fly tying	.1	.2	--	--	--	--	--	--	--
Soap carving	.1	--	--	--	--	--	--	--	--
Shell craft	--	.2	--	--	--	--	.4	--	--
Metal enameling	.3	.4	--	--	--	--	--	--	--
Boat building	--	.1	--	--	--	--	--	--	--
Wire forming	--	--	--	--	--	2.0	--	--	--

TABLE XLV Percent of subject and instructional areas included in industrial arts courses in public secondary schools: Southern Appalachian Region, 1964-65--continued.

Subject and instructional areas	Industrial arts courses								
	General industrial arts	General woods	Drafting	General metals	Graphic arts	Electricity/ electronics	Crafts	Power mechanics	Other
	2	3	4	5	6	7	8	9	10
Metalworking (cont.)									
Foundry	.8	--	.2	7.4	--	--	--	--	--
Forging	.8	--	.3	8.0	--	--	--	--	.8
Metal Industries	1.1	--	.3	7.4	--	--	.2	--	.8
Wire work	.1	--	.1	.6	--	--	--	--	--
Welding & Brazing	1.4	--	.4	7.2	--	--	--	--	.8
Plating	--	--	--	--	--	--	.2	--	--
Metal spinning	.4	.1	.3	.8	--	--	--	--	--
Electricity/Electronics	10.4	1.3	--	--	--	83.6	.6	11.7	12.8
Wiring	3.2	.3	--	--	--	10.8	.6	3.9	2.4
Magnetism	1.7	.1	--	--	--	11.2	--	1.7	.8
Lighting	1.4	--	--	--	--	4.4	--	--	--
Appliances	1.0	.2	--	--	--	6.4	--	--	1.6
Measuring	.9	.2	--	--	--	10.0	--	6.7	.8
Communications	.6	--	--	--	--	7.2	--	--	1.6
Electronics	.6	.3	--	--	--	10.4	--	--	.8
Generation	.4	--	--	--	--	10.0	--	--	1.6
Heating	.3	--	--	--	--	2.8	--	--	1.6
Transmission	.2	--	--	--	--	5.6	--	--	--
Distribution	.1	--	--	--	--	3.6	--	--	--
Transportation	.1	.2	--	--	--	1.2	--	--	---
Power Mechanics	1.9	1.0	--	--	--	--	--	59.1	3.2
Home mechanics	1.6	.5	--	--	--	--	--	9.8	1.6
Auto mechanics	.3	.3	--	--	--	--	--	44.2	.8
Aviation mechanics	--	--	--	--	--	--	--	1.7	.8
Diesel Mechanics	--	--	--	--	--	--	--	1.7	--
Marine engine mechanics	--	--	--	--	--	--	--	1.7	--
Farm mechanics	--	.2	--	--	--	--	--	1.7	--

TABLE XLV Percent of subject and instructional areas included in industrial arts courses in public secondary schools: Southern Appalachian Region, 1964-65--continued.

Subject and instructional areas	Industrial arts courses								
	General industrial arts	General woods	Drafting	General metals	Graphic arts	Electricity/ electronics	Crafts	Power mechanics	Other
	2	3	4	5	6	7	8	9	10
Ceramics	3.1	1.4	--	--	--	--	3.8	--	14.4
Keene's cement	.1	--	--	--	--	--	--	--	--
Finishing	.3	.1	--	--	--	--	.4	--	2.4
Casting	.4	.1	--	--	--	--	.4	--	2.4
Plaster of Paris	.5	--	--	--	--	--	--	--	--
Glazing	.4	--	--	--	--	--	.4	--	2.4
Slak work	.3	.4	--	--	--	--	1.1	--	2.4
Coil work	.5	.4	--	--	--	--	1.1	--	2.4
Pinch ware	.1	.4	--	--	--	--	--	--	--
Ceramic Industry	.3	--	--	--	--	--	.4	--	2.4
Lapidary	.1	--	--	--	--	--	--	--	--
Thrown work	.1	--	--	--	--	--	--	--	--
Leather	12.1	2.0	--	--	--	--	47.7	--	16.8
Lacing	2.3	.4	--	--	--	--	6.8	--	2.4
Tooling	2.4	.4	--	--	--	--	7.2	--	2.4
Finishing	2.1	.4	--	--	--	--	6.5	--	2.4
Stamping	1.8	.4	--	--	--	--	7.2	--	2.4
Carving	1.8	.4	--	--	--	--	7.6	--	2.4
Embossing	.1	--	--	--	--	--	5.3	--	2.4
Leathermaking	.7	--	--	--	--	--	4.0	--	2.4
Shoemaking	.1	--	--	--	--	--	3.0	--	--
Plastics	5.1	.1	--	--	--	.4	1.3	--	--
Finishing	1.2	.1	--	--	--	.4	--	--	--
Twisting	1.0	--	--	--	--	.4	1.0	--	--
Welding	.9	--	--	--	--	--	--	--	--
Internal carving	.4	--	--	--	--	--	.4	--	--
Molding	.6	--	--	--	--	--	1.0	--	--
Plastic Industry	.8	--	--	--	--	--	.4	--	--
Casting	.2	--	--	--	--	--	--	--	--

Note: Detail may not add to total due to rounding.

TABLE XLVI Number and percent of industrial arts teachers according to age, by enrollment size and type of school: Southern Appalachian Region, 1964-65.

Enrollment size and type	Total	Mean	Age of Industrial Arts Teachers											
			24 or under		25 - 34		35 - 44		45 - 54		55 - 64		65 and over	
	2	3	4		5		6		7		8		9	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All sizes	371	34.7	95	25.6	111	29.9	62	16.7	53	14.3	48	12.9	2	.5
2500 and over	5	39.4	--	--	2	40.0	1	20.0	2	40.0	--	--	--	--
1500 to 2499	39	38.3	8	20.5	8	20.5	13	33.3	4	10.3	6	15.4	--	--
1000 to 1499	74	37.8	18	24.3	20	27.0	13	17.6	11	14.9	12	16.2	--	--
750 to 999	72	36.2	17	23.6	22	30.6	10	13.9	15	20.8	7	9.7	1	1.4
500 to 749	84	36.1	21	25.0	27	32.1	14	16.7	11	13.1	11	13.1	--	--
400 to 499	29	34.5	10	34.5	9	31.0	4	13.8	2	6.9	4	13.8	--	--
300 to 399	26	40.5	6	23.1	11	42.3	--	--	3	11.5	6	23.1	--	--
200 to 299	22	32.9	8	36.4	7	31.8	4	18.2	1	4.5	2	9.1	--	--
100 to 199	15	33.7	5	33.3	4	26.7	3	20.0	3	20.0	--	--	--	--
1 to 99	5	38.4	2	40.0	1	20.0	--	--	1	20.0	--	--	1	20.0
All types	371	34.7	95	25.6	111	29.9	62	16.7	53	14.3	48	12.9	2	.5
Junior-Senior H.S.	104	33.1	41	39.4	31	29.8	15	14.4	5	4.8	11	10.6	1	1.0
Junior H.S.	96	38.3	19	19.8	29	30.2	15	15.6	20	20.8	12	12.5	1	1.0
Traditional H.S.	90	37.9	19	21.1	31	34.4	12	13.3	10	11.1	18	20.0	--	--
Senior H.S.	81	31.8	16	19.8	20	24.7	20	24.7	18	22.2	7	8.6	--	--

APPENDIX B

PROJECT PROPOSAL, PROPOSAL MAP, AND SURVEY QUESTIONNAIRE

PROJECT PROPOSAL

Proposal S-170-64
Project S-091

Project Title: Study of Industrial Arts Education in Public Secondary Schools of the Southern Appalachian Region.

Submitted by: West Virginia University, Morgantown, W. Va.

Initiated by: Dr. Thomas H. Brennan, Coordinator of Industrial Arts Programs, West Virginia University, Morgantown, West Virginia
Telephone - 304 293-5460.

Principal Investigator: Charlie J. Collins, Assistant Professor and Chairman, Department of Industrial Arts, West Virginia Institute of Technology, Montgomery, West Virginia

Date: February 7, 1964

(Revised March 31, 1964)

1. Abstract

(a) Objectives.

(1) To study industrial arts programs in public secondary schools in the Southern Appalachian Region. The study will include: (a) objectives; (b) programs of instruction, (c) teachers, (d) facilities, and (e) current changes.

(b) Procedure.

A survey of industrial arts programs in the Southern Appalachian Region will be made. This area, formed by the Southern Appalachian Mountains and plateaus, is made up of parts of six states and all of West Virginia.

Instruments developed by Dr. Schmitt and used in a previous national survey will be mailed to all schools in the area with industrial arts programs. After a thirty day period, follow-up letters will be mailed at ten day intervals. Personal visits will be made to a random sample of 5% of the schools surveyed to validate responses.

Data will be programmed at the West Virginia University Computer Center. Statistical procedures comparable to those used in the Schmitt study will be used to allow comparison of regional findings to national data. Interpretations will be based upon frequency counts using the mean, median, and percent as applicable to response. Data will be made available for future study and research.

2. Problem

The Appalachian Region has received considerable attention recently concerning its lack of socio-economic and educational development. The Appalachian Region lags behind the Nation in the development of human resources; conversely, the percentage of school drop-outs and young high school graduates and non-graduates without salable skills is high (Ford, 1962).

Industrial arts, as a part of general education, is an exploratory and developmental area dealing with technology, its tools, materials, machines, processes, and with technological changes. This key curricular area has the potential to impart the nature of our industrial culture as well as to develop pre-vocational and technical skills.

Although the status of industrial arts programs in the region has not been determined, this subject area is believed to lag farther behind the national average than the so-called academic curricular areas. This lag may be a contributing factor in the retarded economic growth of the region. This study will determine the status of industrial arts programs in the region.

3. Related Literature

In discussing the place of industrial arts in the American culture, Hornbake describes it as offering the student more than just a series of techniques and processes. Industrial arts, he indicates, is an area which also has the potential to enable students of all ability levels to understand and to communicate in an industrial world (Schmitt, 1960).

The concern of educational, political, and civic leaders in the Southern Appalachian Region has resulted in a number of studies of various facets of education and growth in the area (Munn, 1961). However, no inclusive study of industrial arts programs has been made.

One study of sixty-nine high schools in the region revealed that 50% or more did not offer industrial arts, and no arts or crafts were offered in the typical school (Ford, 1962). By contrast, only 16.8% of all secondary schools in Ohio had no industrial arts (Towers, 1959). In the region, only one in five adults was graduated from high school as compared to one in three for the nation (Ford, 1962).

A re-evaluation study of all phases of industrial arts was made in Ohio (Towers, 1959). The resulting report gave a thorough analysis of the existing conditions and offered recommendations for correcting deficiencies.

Of seventy-five industrial arts curriculum guides issued during the period 1953-1958, thirty-nine were judged to contain suitable information and were analyzed for industrial arts curricula representative of secondary schools in the United States. Of the number analyzed, only two were from the Southern Appalachian Region. Details of content were reported by states. The status of instruction, laboratories, and changes taking place was not covered (Schmitt, c1961).

4. Objectives

(a) To study industrial arts programs in public secondary schools in the Southern Appalachian Region. The study will include: (1) objectives, (2) programs of instruction, (3) teachers, (4) facilities, and (5) current changes.

(b) To compare the findings with those of a national study (unpublished at this time) made in 1962 by Dr. Marshall L. Schmitt, United States Office of Education.

Analysis of data will provide an objective profile of industrial arts in the region. Professional preparation and other pertinent information about teachers, their methods of instruction, and course content at grade levels from seven through twelve will be obtained. It will be determined if principals and teachers agree on the objectives of industrial arts. The influence of vocational education on industrial arts, where the two programs exist in the same school, will be studied.

Comparison of the findings of this study to those of the national study will indicate how and to what degree the industrial arts programs of the region differ from typical programs of the nation.

Information collected will be available to be used as the basis for future study and development. For constructive, realistic industrial arts programs to be developed, there must first be a thorough examination of programs as they now exist.

5, Procedure

(a) General Design--The proposed study will be a survey of all public secondary schools with industrial arts programs in the Southern Appalachian Region. Sampling will be done by mail, with sufficient follow-up to minimize non-response bias. Personal visits will be made to a random sample of 5% of the schools to ascertain validity of response.

Data will be analyzed on the IBM 7040-1401 computer system at West Virginia University's computer center and will be available for further study.

(b) Population and Sample--The Southern Appalachian Region, for this study, will include the area used by Ford (see attached map), plus eleven additional counties in West Virginia. The states included are: Alabama, Georgia, Kentucky, North Carolina, Tennessee, Virginia, and all of West Virginia. Due to the small number of industrial arts programs (about 500) and the multiplicity of administrative units, all public secondary schools with industrial arts programs in the area will be included in the study.

(c) Data and Instrumentation--Basic information about public secondary school industrial arts programs in the Southern Appalachian Region will be obtained by the use of two instruments developed by Dr. Schmitt and used in his 1962 survey. These are: "Survey of Industrial Arts in American Public Secondary Schools (Principal's Form - Part I)" and "Survey of Industrial Arts in American Public Secondary Schools (Teacher's Form - Part II)." Titles and letters of instruction will be changed to adapt to the regional study.

In order to make a valid comparison of industrial arts programs in the region to those included in the national study, it is essential that the same procedures be used. Approval has been obtained from Dr. Eric Baber, United States Office of Education, to use the procedures and materials developed by Dr. Schmitt. These include:

(1) Principal and teacher questionnaire forms.
(2) Editing instructions.
(3) Electrical Accounting Machine (EAM) edit procedure.
(4) Table shells.
(5) Consultative services.

(d) Analysis--The same descriptive statistics for the region will be collected as were in Dr. Schmitt's study. The differences will be tested for significance by means of the "t" test, C. R., significance of a proportion, and the chi square test as appropriate.

(e) Time Schedule--An estimate of time requirements follows:

Print and mail questionnaires	Aug. 1 to Sept. 30, 1964
Follow-up letters at 10 day intervals start	Oct. 1, 1964
Assemble data	Nov. 2 to Dec. 31, 1964
Personal visits	Jan. 1 to Jan. 30, 1965
Program data	Feb. 1 to Apr. 30, 1965
Analysis and final report	May 1, 1965 to Jan. 31, 1966

6. Personnel

(a) Dr. Thomas H. Brennan, Professor and Coordinator of Industrial Arts Programs, West Virginia University. Dr. Brennan, who will direct this project, joined the West Virginia University Faculty in 1941, where he has served except for a four year period. He is advisor for technical education for West Virginia University's Appalachian Center. Dr. Brennan's doctoral research was in the area of ceramics. He is the author of one text book in ceramics, an article on industrial education in East Africa, a drop-out study (unpublished), and a comparative analysis of offerings in nine technical institute programs. He is a member of a state committee studying industrial arts, with the responsibility of devising curriculum guides. He is also a member of the American Vocational Association Policy and Planning Committee for Reluctant Learners and Drop-outs. Dr. Brennan served for two years as a technician in East Africa, devising a teacher-training program in the area of Handicrafts for Kenya. He is currently completing a mottion picture, "Hands," financed by the Benedum Foundation, which describes the contributions of industrial arts crafts to educating the mentally retarded.

(b) Charlie J. Collins, Assistant Professor and Chairman, Department of Industrial Arts, West Virginia Institute of Technology. Mr. Collins, who will serve as principal investigator, is in his fourth year in his present position. He previously taught industrial arts in both junior and senior high schools in West Virginia. He is a member of a state committee studying industrial arts, with the responsibility of devising curriculum guides. He served as a member of a state committee studying industrial arts teacher education which made recommendations for revising state requirements for teacher certification in industrial arts. He is also chairman of a committee studying the objectives of teacher education at West Virginia Institute of Technology. Mr. Collins is the author of two articles in the West Virginia School Journal concerning the potential and the nature of industrial arts. His research experience includes a study of methods for improving industrial arts enrollment at West Virginia Institute of Technology and the need for a four year degree program to train institutional and large building maintenance supervisors.

(c) Dr. Benjamin Bailey, Associate Professor of Education, College of Education, West Virginia University. Dr. Bailey, who will serve as a consultant, joined the West Virginia University faculty in 1959. Prior to joining the West Virginia University faculty, he was a research assistant at the University of Florida. Areas of research experience include school curriculum and plant surveys, educational leadership and motivation studies. Pertinent to this study is the United States Office of Education study, "Characteristics of High School Seniors as Related to College Attendance" of which he is director. His experience includes three years of high school teaching in the Southern Appalachian Region. He was granted the Ed.D. by the University of Florida in 1959 under the direction of R. L. Johns and Vynce Hines.

(d) Dr. Harold Gibbard, Professor and Chairman, Department of Sociology, West Virginia. Dr. Gibbard, who will serve as a consultant, has been at West Virginia University since 1948. In 1953-1955 he was co-director of a project entitled "The Acquiring of membership in Established Groups" (Office of Naval Research NONR-1365 [01]). During 1956-57 he participated in the West Virginia school study which resulted in the publication of "A Survey of the Educational Programs of the West Virginia Public Schools." In this study he drew school samples, made the final revisions on all field instruments, and participated in the analysis and writing. In 1958-60 he participated in the Ford Foundation supported project entitled Southern Appalachian Studies contributed a chapter entitled "Extractive Industries and Forestry" to Thomas Ford, ed., The Southern Appalachian Region, A Survey. He also based his 1960 presidential address before the Ohio Valley Sociological Society on materials gathered in this study. He is presently at work on a segment of the Ford Foundation Project on retraining programs for the unemployed.

(e) Dr. Arthur N. Hofstetter, Professor of Education, Coordinator of Educational Research and Field Services for the College of Education, West Virginia University. Dr. Hofstetter, who will serve as a consultant, joined the West Virginia University faculty in 1955. His experience includes working as a teacher in secondary and elementary schools, school principal in elementary and secondary schools, and as Coordinator of Supervisor Education for the College of Education. Since September of 1961 he has been Coordinator of Educational Research and Field Services for the College of Education, West Virginia University. His research experience includes school curriculum development and evaluation (3 publications), evaluation of supervision of instruction (4 publications), educational leadership (3 publications), curriculum and school plant services (3 publications). He was granted the Doctor of Education Degree at the University of Virginia in 1956.

(f) Dr. Stanley O. Ikenberry, Assistant Professor of Education and Assistant to the Provost for Institutional Research. Dr. Ikenberry, who will serve as a consultant, joined the West Virginia University faculty in July, 1962. Prior to coming to West Virginia University, he was Assistant Professor in the Office of Institutional Research, Michigan State University. Areas of research experience include a study of student withdrawal from college, student attitude and value changes resulting from college attendance and other problems related to faculty loads and instructional costs in higher education. His Ph.D. degree was obtained in 1960, Michigan State University, under Paul L. Dressel and William W. Farquhar.

(g) Dr. Marshall L. Schmitt, Specialist for Industrial Arts, Division of Elementary and Secondary Education, United States Office of Education. Dr. Schmitt, who will serve as a consultant, has been in his present position since 1957. He served on the faculty of Oswego State Teachers College, Oswego, New York, and North Carolina State College of Agriculture and Engineering of the University of North Carolina, Raleigh, North Carolina. He has taught in the public schools of New York State and the Army Air Forces Technical Training Command during the early part of World War II. He was granted the Ed.D. degree by Pennsylvania State College in 1953. He is the co-author of one textbook entitled Understanding Electricity and Electronics. Some of his major U. S. Office of Education publications are: Industrial Arts (an analysis of 39 state curriculum guides), Improving Industrial Arts Teaching (conference report), and Soviet Educational Programs.

7. Facilities

The University presently has all major facility requirements. The library, for example, has an excellent collection in areas of higher education, industrial arts and the Appalachian Region.

Major adjustments in the computer facilities now under way will provide excellent facilities for data processing and analysis. The Computer Center has two high input-output IBM 1620 computers and an IBM 1401 (8 K) tape system. By the summer of 1964, and in time for the analyses of data, the University will have an IBM 7040 tape system, integrated with the IBM 1401 system to replace the existing IBM 1620's. In addition to machine service, the Computer Center will provide consultation and programming services.

BUDGET[1]

Investigator: Charlie J. Collins
Institution: W. Va. University
Duration: 1 years 6 mos.
Beginning Date: Mar. 15, 1964
Ending: Sept. 15, 1965

Category	Federal Funds Requested	
Personnel:		
Director: Dr. Thomas H. Brennan		
5% time March 15, 1964 - Sept. 15, 1965	None	
Consultants:		
Dr. Benjamin Bailey	None	
Dr. Harold Gibbard	None	
Dr. Arthur N. Hofstetter	None	
Dr. Stanley O. Ikenberry	None	
Dr. Marshall L. Schmitt	None	
Investigator:		$5,100
March 15, 1964 to May 31, 1964	None	
June 1, 1964 to Aug. 31, 1964 50% time @ $720 per mo.	$1,080	
Sept. 1, 1964 to Feb. 1, 1965	None	
Feb. 1, 1965 to Aug. 31, 1965 80% time @ $720 per mo.	$4,020	
Clerical Assistance @ $1.25 per hour		250
Supplies and Materials:		
Office Supplies, Stationary, Stamps		250
Services:		
Printing Questionnaires		150
Statistical		1,200
Duplicating Final Report		50
Other:		
Travel		500
	SUB TOTAL	$7,500
Overhead:		
@ 20%		1,500
	TOTAL	$9,000

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[1] Salary allowed is based on Mr. Collins' regular salary. Other services and materials are based on current standards at the University.

REFERENCE

Ford, Thomas R., ed., *The Southern Appalachian Region: A Survey.* Lexington: University of Kentucky, 1962.

Johnson, Palmer O., "Development of the Sample Survey as a Scientific Technology," *Journal of Experimental Education*, 27:167-76, March, 1959.

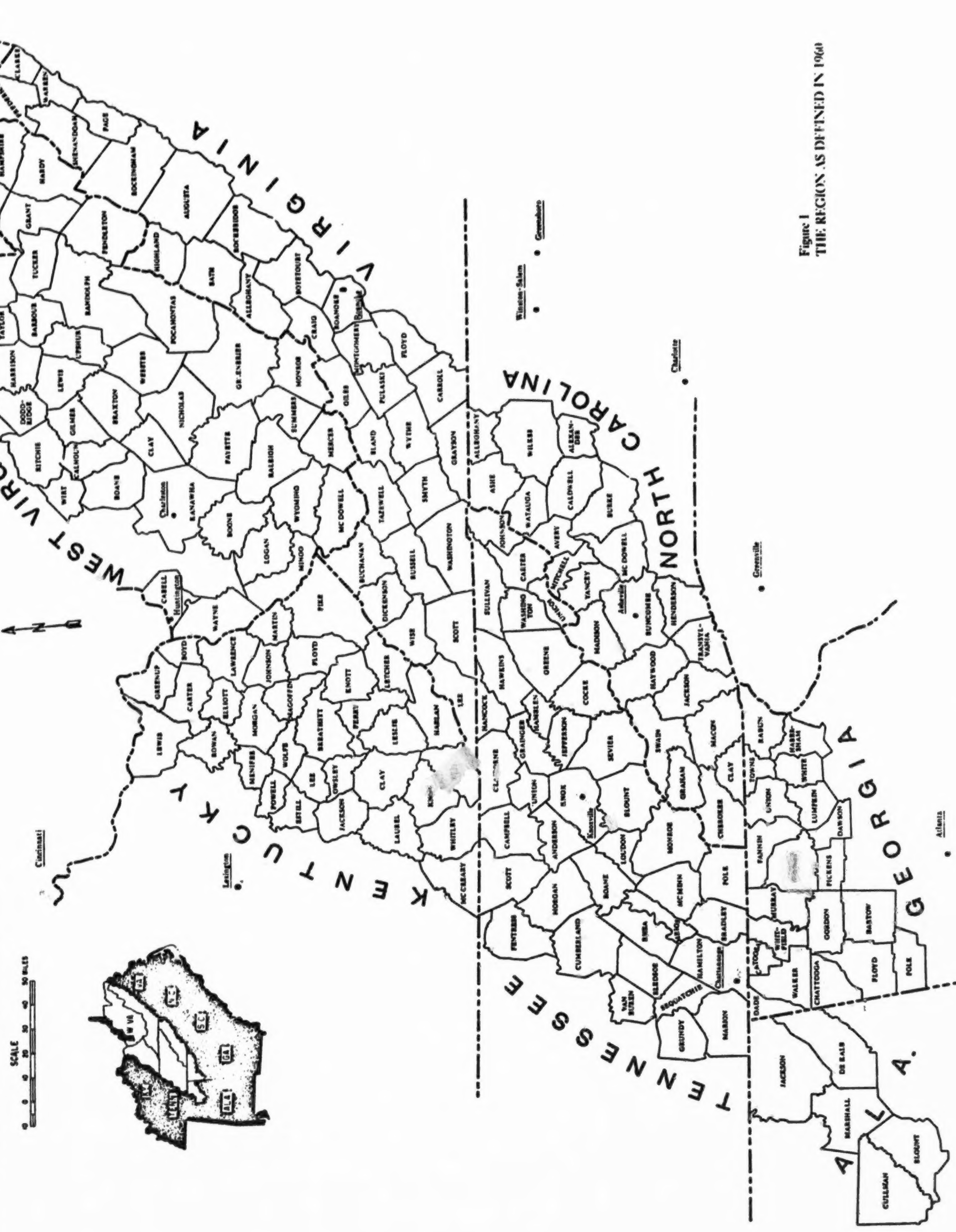
Munn, Robert F. *Southern Appalachians: A Bibliography and Guide to Studies.* Morgantown: West Virginia University, 1961.

Schmitt, Marshall L. *Improving Industrial Arts Teaching: A Conference Report.* Department of Health, Education and Welfare, Office of Education, OE-33022. Washington: Government Printing Office, 1960.

Schmitt, Marshall L., Paul E. Harrison and Albert L. Pelley. *Industrial Arts: An Analysis of 39 State Curriculum Guides: 1953-1958.* Department of Health, Education and Welfare, Office of Education, Bulletin No. 17. Washington: Government Printing Office, 1961.

Towers, Edward R. and Willis E. Ray. *The Status of Industrial Arts in the Secondary Public Schools of Ohio.* Columbus: Ohio State University, 1959.

THE SOUTHERN APPALACHIANS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Greensboro
Charlotte
Asheville
Greenville
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Chattanooga
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Birmingham
MORGAN
BERKELEY
JEFFERSON
CLARKE
FREDERICK
WARREN
HAMPSHIRE
MINERAL
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GRANT
ROCKINGHAM
PENDLETON
AUGUSTA
ROCKBRIDGE
HIGHLAND
BATH
PRESTON
TUCKER
MONONGALIA
MARION
TAYLOR
BARBOUR
RANDOLPH
HARRISON
UPSHUR
POCAHONTAS
ALLEGHANY
BOTETOURT
CRAIG
ROANOKE
MONTGOMERY
FLOYD
DODDRIDGE
LEWIS
WEBSTER
GREENBRIER
MONROE
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PULASKI
CARROLL
RITCHIE
GILMER
BRAXTON
NICHOLAS
SUMMERS
MERCER
BLAND
WYTHE
GRAYSON
WIRT
CALHOUN
CLAY
FAYETTE
RALEIGH
ROANE
KANAWHA
BOONE
WYOMING
MC DOWELL
TAZEWELL
SMYTH
WASHINGTON
CABELL
LOGAN
MINGO
BUCHANAN
RUSSELL
WAYNE
MARTIN
PIKE
DICKENSON
WISE
SCOTT
LEE
BOYD
GREENUP
LAWRENCE
JOHNSON
FLOYD
CARTER
ELLIOTT
MAGOFFIN
KNOTT
LETCHER
LEWIS
ROWAN
MORGAN
BREATHITT
PERRY
HARLAN
MENIFEE
WOLFE
LESLIE
POWELL
LEE
OWSLEY
CLAY
BELL
ESTILL
JACKSON
LAUREL
KNOX
WHITLEY
MC CREARY
ALLEGHANY
ASHE
WILKES
ALEXANDER
WATAUGA
CALDWELL
BURKE
AVERY
MITCHELL
YANCEY
MC DOWELL
BUNCOMBE
HENDERSON
MADISON
HAYWOOD
TRANSYLVANIA
JACKSON
MACON
SWAIN
GRAHAM
CHEROKEE
CLAY
SULLIVAN
CARTER
WASHINGTON
UNICOI
GREENE
HAWKINS
HANCOCK
HAMBLEN
COCKE
JEFFERSON
GRAINGER
CLAIBORNE
UNION
SEVIER
KNOX
BLOUNT
CAMPBELL
ANDERSON
LOUDON
MONROE
SCOTT
MORGAN
ROANE
MC MINN
POLK
FENTRESS
CUMBERLAND
RHEA
MEIGS
BRADLEY
HAMILTON
BLEDSOE
VAN BUREN
SEQUATCHIE
GRUNDY
MARION
RABUN
HABERSHAM
TOWNS
WHITE
UNION
LUMPKIN
FANNIN
GILMER
DAWSON
PICKENS
MURRAY
CATOOSA
WHITFIELD
GORDON
BARTOW
WALKER
CHATTOOGA
FLOYD
POLK
DADE
JACKSON
DE KALB
MARSHALL
BLOUNT
CULLMAN

Figure 1
THE REGION AS DEFINED IN 1960

OE 2370C (PART I)

BOB 51-6422
Approval Expires: 1-31-66

SURVEY OF INDUSTRIAL ARTS IN AMERICAN PUBLIC SCHOOLS

SOUTHERN APPALACHIAN REGION

Principal's Form-Part I

MAIL TO:
Charlie J. Collins
Industrial Arts Bldg.
Beechurst Ave.
Morgantown, W. Va.

SCHOOL

TO THE PRINCIPAL

Dear Sir:

The rapid pace at which technological change is taking place affects everyone. Industrial Arts deals with technology—its tools, materials, machines, industrial processes, and its related human problems. The U. S. Office of Education has conducted a fundamental study to determine the nature and scope of industrial arts as a curriculum area in the public schools which reflects this technological change. This study will compare industrial arts in the Southern Applachian Region to National findings. The data collected will be available for future studies at the Applachian Center at West Virginia University.

The State Board of Education of West Virginia recently appointed a committee to study industrial arts in West Virginia and make recommendations based on the findings. Since all of West Virginia is included in the Region, the Applachian Study may be used to validate the West Virginia Study.

This survey is being sent to public secondary schools in the Southern Applachian Region to obtain much needed data In order to have the data representative of the total population, we need your help Please refer to the General Information and Definations given below for specific instructions.

Your cooperation in this important project will be sincerely appreciated.

PERSONAL VISITATION: A random sample of schools surveyed will be visited by the investigator. Will you grant permission for this visit during school time?

Yes **No**

Sincerely yours.

Charlie J. Collins, Principal Investigator
Chairman, Industrial Arts Department
West Virginia Institute of Technology
Montgomery, West Virginia

GENERAL INFORMATION

PURPOSE: The purpose of this survey is to find out basic information about industrial arts teachers, laboratories, and instruction; and to identify the current changes in the secondary school industrial arts program.

DIRECTIONS: This survey form is being sent to a representative sample of secondary schools. This survey has two parts. The principal of the school is asked to complete Part I (shown on the reverse side of this green form letter) and return it in the self-addressed stamped envelope. The principal should give each of his industrial arts teacher(s) a copy of the yellow form Part II (enclosed) to complete and mail in a self-addressed envelope. Please provide your best ESTIMATE based on the information readily available to you. Please return the completed forms as quickly as possible. If you do not have an industrial arts program, please complete Part I, items 1-4 and return the forms.

DEFINITIONS

GRADES COVERED. Report data for whatever grades of the range 7 through 12 constitute the program of secondary education in your school. *Exclude* grades 7 and 8 that are part of a program of elementary education.

INDUSTRIAL ARTS LABORATORY OR COURSE. A classroom, drawingroom, shop, or laboratory that has special facilities in which students learn about technology—its tools, materials, machines, and industrial processes *taught primarily for the purpose of general education.* Examples: Mechanical drawing, metalwork, laboratory of industries, general shop, electricity and electronic, Industrial Arts I, graphic arts, power mechanics, etc. DO NOT REPORT vocational trade or vocational technical courses.

Twenty minutes, or less, of your time will complete this form.

PART 1-PRINCIPAL'S FORM

NAME OF PRINCIPAL *(Last, first, and middle initial)*	TITLE	DATE

1 TOTAL MEMBERSHIP IN YOUR SECONDARY SCHOOL ON REPORTING DATE CLOSEST TO SEPTEMBER 24, 1964 → ______________

2 INDICATE YOUR TYPE OF SCHOOL ORGANIZATION BY PLACING A "√" IN THE APPROPRIATE PLACE.

1 ☐	*Six-year high school (7-12)*
2 ☐	*Two or three year junior high school (7-8 or 7-9)*
3 ☐	*Three-year senior high school (10-12)*
4 ☐	*Four-year high school (9-12) following eight years elementary*
5 ☐	*Four-year high school (9-12) following six years elementary and two years intermediate high school*
6 ☐	*Other*

3 DOES YOUR SCHOOL HAVE A VOCATIONAL INDUSTRIAL EDUCATION (TRADE AND/OR TECHNICAL TRAINING) PROGRAM FOR SECONDARY SCHOOL PUPILS?

("√" one)

1 ☐ YES →

3a. If yes, is the program reimbursed from Federal Funds?

1 ☐ YES 2 ☐ NO

2 ☐ NO →

3b. If no, is there another school, either in or out of your school district that provides a vocational industrial education program for students in your attendance area

1 ☐ YES 2 ☐ NO

4 IS INDUSTRIAL ARTS TAUGHT IN YOUR SCHOOL?

("√" one)

1 ☐ YES →

If yes, proceed with question 5 and answer the rest of this survey form

2 ☐ NO →

If no, answer questions 4a and 4b and return the questionnaire.

4a. Are there regular industrial arts facilities available in your school?

1 ☐ YES 2 ☐ NO

4b. Are industrial arts facilities being planned for your school within the next three years?

1 ☐ YES 2 ☐ NO

5 GIVE THE TOTAL NUMBER OF INDUSTRIAL ARTS LABORATORIES (DRAWING ROOMS AND/OR SHOPS) YOU HAVE IN YOUR SCHOOL. *Do not include vocational shops unless they are used for industrial arts purposes.*

TOTAL NO. ______________

6 IN YOUR OPINION, WHAT DEGREE OF EMPHASIS SHOULD BE PLACED ON THE FOLLOWING PURPOSES OF INDUSTRIAL ARTS IN YOUR SCHOOL? *("√" ONE FOR EACH PURPOSE)*

DEGREE OF EMPHASIS			PURPOSES OF INDUSTRIAL ARTS
HIGH	MED	LOW	
3 ☐	2 ☐	1 ☐	*a. To develop an understanding of our technical culture*
3 ☐	2 ☐	1 ☐	*b. To discover and to develop creative technical talents in students*
3 ☐	2 ☐	1 ☐	*c. To develop an understanding of the application of science and math.*
3 ☐	2 ☐	1 ☐	*d. To develop in each student a measure of skill in the use of common tools and machines*
3 ☐	2 ☐	1 ☐	*e. To provide pre-vocational experience of an intensified nature for those students interested in technical work*
3 ☐	2 ☐	1 ☐	*f. To provide vocational training for students who would not otherwise have this opportunity*
3 ☐	2 ☐	1 ☐	*g. To provide general all-around technical knowledge and skills*
3 ☐	2 ☐	1 ☐	*h. To develop worthy leisure-time interests*
3 ☐	2 ☐	1 ☐	*i. To develop consumer knowledge and appreciation and use of industrial products*
3 ☐	2 ☐	1 ☐	*j. To develop problem-solving skills relating to materials & processes*
3 ☐	2 ☐	1 ☐	*k. Other*

7 TO WHAT EXTENT IS INDUSTRIAL ARTS REQUIRED WITH A SPECIFIC TIME ALLOTMENT IN THE ELEMENTARY SCHOOLS THAT SEND THEIR GRADUATES TO YOUR SECONDARY SCHOOL? *("√" only one)*

1 ☐	*Not applicable. This school receives its students from non-elementary schools.*
2 ☐	*Not required in any elementary school and none have it*
3 ☐	*Not required in any elementary school but some do have it*
4 ☐	*Required in some elementary schools*
5 ☐	*Required in all elementary schools*
6 ☐	*Don't know*
7 ☐	*Other*

8 GIVE THE NUMBER OF WEEKS INDUSTRIAL ARTS WAS AND/OR IS COMPULSORY FOR BOYS AND FOR GIRLS IN YOUR SECONDARY SCHOOL DURING 1954-55, 1958-59 AND 1964-65 FOR THOSE GRADE LEVELS UNDER YOUR ADMINISTRATION. *IF NOT COMPULSORY, WRITE A ZERO "0".*

GRADE LEVEL	NUMBER OF WEEKS REQUIRED					
	1954-55		1958-59		1962-63	
	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS
EXAMPLE: GR. 7	18	9	18	9	18	0
Grade 7						
Grade 8						
Grade 9						
Grade 10						
Grade 11						
Grade 12						
SCHOOL NOT OPERATING: *("√" If Applicable)*	1954-55		1958-59			

9 MAY INDUSTRIAL ARTS COURSES BE SUBSTITUTED FOR SCIENCE CREDITS IN YOUR SCHOOL? *("√" one)*

1 ☐ YES 2 ☐ NO

10 INDICATE THE APPROXIMATE EXPENDITURES FOR INDUSTRIAL ARTS IN YOUR SCHOOL FOR THE YEAR 1964-65: *(If necessary, telephone your central business office)*

EXPENDABLE SUPPLIES $	EQUIPMENT $

11 WHAT TYPE OF WORK-EXPERIENCE PROGRAM IS ADMINISTERED IN YOUR SECONDARY SCHOOL BY ANY OF YOUR INDUSTRIAL ARTS TEACHERS? *("√" as many as apply)*

1 ☐	*a. None*
1 ☐	*b. In school, nonremunerative general education work-experience program*
1 ☐	*c. Out-of-school, nonremunerative general education work-experience program*
1 ☐	*d. In school, remunerative general education work-experience program*
1 ☐	*e. Out-of-school, remunerative general education work-experience program*
1 ☐	*f. Other*

12 *IMPORTANT: Please list the names of your teachers of industrial arts courses, and give each of them one of the enclosed yellow form-Part II, with a self-addressed envelope. If additional forms are needed for any teachers Please place a "√" opposite their name on the list and forms will be sent directly to them.*

NAME OF TEACHERS *(First, Middle Initial, and Last)*

1 ☐ ______________
2 ☐ ______________
3 ☐ ______________
4 ☐ ______________
5 ☐ ______________
6 ☐ ______________
7 ☐ ______________
8 ☐ ______________
9 ☐ ______________
10 ☐ ______________

PLEASE MAIL THIS FORM NOW

OE 2070C (PART II)

BOB 51-6422
Approval Expires: 1-31-66

SURVEY OF INDUSTRIAL ARTS IN AMERICAN PUBLIC SCHOOLS

SOUTHERN APPALACHIAN REGION

Teacher's Form-Part II

MAIL TO:
Charlie J. Collins
Industrial Arts Bldg.
Beechurst Ave.
Morgantown, W. Va.

SCHOOL

GENERAL INFORMATION

PURPOSE: The purpose of this survey is to find out basic information about industrial arts teachers, laboratories, and instructions; and to identify the current changes in the secondary school industrial arts. This study will compare industrial arts in the Southern Appalachian Region to National findings.

DIRECTIONS: This survey form is being sent to secondary schools in the Southern Appalachian Region. The survey has two parts. The principal of the school has been asked to complete Part I and forward Part II to each of his industrial arts teachers.

Part II (yellow form) should be completed by industrial arts teachers giving their best estimate based on information readily available for classes being taught THIS SEMESTER only.

Complete the form as quickly as possible and return in the self addressed stamped envelope.

PERSONAL VISITATION: A random sample of schools surveyed will be visited by the investigator. Will you grant permission to visit your classes? ______ Yes ______ No

DEFINITIONS

GRADES COVERED. Report data for whatever grades of the range 7 through 12 constitute the program of secondary education in your school. **EXCLUDE** grades 7 and 8 that are part of a program of elementary education.

INDUSTRIAL ARTS LABORATORY OR COURSE. A classroom, drawingroom, shop, or laboratory that has special facilities in which students learn about technology – its tools, materials, machines, and industrial processes taught primarily for the purpose of general education. *Examples: Mechanical drawing, metalwork, laboratory of industries, general shop, electricity and electronics, industrial arts I, graphic arts, power mechanics, etc. DO NOT REPORT VOCATIONAL TRADE OR VOCATIONAL TECHNICAL COURSES.*

NAME OF REPORTING TEACHER *(Last, First, Middle Initial)*	TITLE	DATE

1. IN YOUR OPINION, WHAT DEGREE OF EMPHASIS SHOULD BE PLACED ON THE FOLLOWING PURPOSES OF INDUSTRIAL ARTS IN YOUR SCHOOL? *("√" ONE FOR EACH PURPOSE)*

DEGREE OF EMPHASIS			PURPOSE
HIGH	MED.	LOW	
3 ☐	2 ☐	1 ☐	*a. To develop an understanding of our technical culture*
3 ☐	2 ☐	1 ☐	*b. To discover and to develop creative technical talents in students*
3 ☐	2 ☐	1 ☐	*c. To develop an understanding of the application of science & mathematics*
3 ☐	2 ☐	1 ☐	*d. To develop in each student a measure of skill in the use of common tools and machines*
3 ☐	2 ☐	1 ☐	*e. To provide Pre-vocational experience of an intensified nature for those students interested in technical work*
3 ☐	2 ☐	1 ☐	*f. To provide vocational training for students who would not otherwise have this opportunity*
3 ☐	2 ☐	1 ☐	*g. To provide general all-around technical knowledge & skills*
3 ☐	2 ☐	1 ☐	*h. To develop worthy leisure-time interests*
3 ☐	2 ☐	1 ☐	*i. To develop consumer knowledge & appreciation and use of industrial products*
3 ☐	2 ☐	1 ☐	*j. To develop problem-solving skills relating to materials and processes*
3 ☐	2 ☐	1 ☐	*k. Other*

2. "√" THE TYPE OF STATE TEACHING CERTIFICATE YOU HOLD

1 ☐ *Regular or standard (i.e., a certificate representing FULL qualifications)*

2 ☐ *Emergency or sub-standard (i.e., a certificate representing LESS than full qualifications)*

3. "√" THE HIGHEST EDUCATIONAL DEGREE WHICH YOU HAVE EARNED

1 ☐ *No degree*	4 ☐ *Master's*
2 ☐ *Associate degree*	5 ☐ *Doctor's*
3 ☐ *Bachelor's*	6 ☐ *Other*

4. "√" THE APPROXIMATE NUMBER OF SEMESTER HOURS YOU HAVE EARNED (graduate & undergraduate) FOR EACH OF THE FOLLOWING CURRICULUM AREAS. *(NOTE: To convert quarter hour courses to semester hours multiply quarter hours by 2/3. A three quarter hour course is equal to two semester hours)*

CURRICULUM AREAS	NO. OF SEMESTER HOURS COMPLETED						
	0-5	6-10	11-20	21-30	31-40	41-50	51 AND OVER
SCIENCE AND MATHEMATICS COURSES "√" one	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
TECHNICAL COURSES *(Shop-Drawing)* "√" one	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
EDUCATION COURSES *(Curriculum, methods student teaching etc.)* "√" one	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐
ALL OTHER COURSES *(English, (History, etc.)* "√" one	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐

5. a. WHAT IS YOUR GROSS REGULAR SCHOOL SALARY, BEFORE ANY DEDUCTIONS FOR 1966-67 *(To the nearest $10)*

$ ____________

b. HOW MANY MONTHS OF WORK, OR FRACTION THEREOF, DOES THE ABOVE SALARY REPRESENT, REGARDLESS OF HOW PAID? *("√" ONE)*

1 ☐ *7 months or less*	4 ☐ *10 months*
2 ☐ *8 months*	5 ☐ *11 months*
3 ☐ *9 months*	6 ☐ *12 months*

6. HOW MUCH INCOME FROM SALARIES, WAGES, COMMISSIONS, OR FEES IN ADDITION TO YOUR REGULAR SCHOOL SALARY - DO YOU EXPECT TO RECEIVE DURING THE YEAR JULY 1, 1966 TO JUNE 30, 1967 FROM EACH OF THE FOLLOWING SOURCES? *(Complete both items, make estimates if necessary, or write "0" if applicable)*

From second teaching job, such as night school or summer school $ ____________	*From nonteaching job, such as, summer employment in a factory* $ ____________

7. "√" YOUR TOTAL YEARS OF EXPERIENCE TEACHING INDUSTRIAL ARTS (Grades 7-12) INCLUDE THIS YEAR

1 ☐ one yr.	5 ☐ 11-15 yrs.
2 ☐ 2-3 yrs.	6 ☐ 16-20 yrs.
3 ☐ 4-5 yrs.	7 ☐ 21 yrs. or more
4 ☐ 6-10 yrs.	

8. IN WHICH OF THE FOLLOWING ACTIVITIES DO YOU HAVE A MAJOR RESPONSIBILITY THIS YEAR? *("√" AS MANY AS APPLY)*

1 ☐	*a. None*	1 ☐	*j. School Paper*
1 ☐	*b. Industrial Arts Contests*	1 ☐	*k. Student Book Store or Concession*
1 ☐	*c. Athletic Contests (non-coaching duties)*	1 ☐	*l. Year Book*
1 ☐	*d. Coach Athletics*	1 ☐	*m. Lunch Room*
1 ☐	*e. Industrial Arts Club*	1 ☐	*n. Class Advisor*
1 ☐	*f. School Club Advisor (other than item e above)*	1 ☐	*o. Home Room*
1 ☐	*g. Supervision of School Grounds*	1 ☐	*p. Audio-visual Coordinator*
1 ☐	*h. Field Trips (general)*	1 ☐	*q. School Assemblies*
1 ☐	*i. Student Council*	1 ☐	*r. Other*

9. INDICATE THE NON-INDUSTRIAL ARTS CLASSES YOU TEACH. *("√" AS MANY AS APPLY)*

1 ☐	*a. None*	1 ☐	*j. Driver Education*
1 ☐	*b. Physical Education*	1 ☐	*k. Physics*
1 ☐	*c. General Science*	1 ☐	*l. Agriculture*
1 ☐	*d. Biology*	1 ☐	*m. Citizenship*
1 ☐	*e. Social Studies*	1 ☐	*n. English*
1 ☐	*f. Geometry*	1 ☐	*o. Other*
1 ☐	*g. Algebra*		
1 ☐	*h. General Mathematics*		
1 ☐	*i. General Business*		

10. RELATIVE TO THE RANGE OF ABILITY OF ALL STUDENTS IN YOUR SCHOOL, HOW WOULD YOU CHARACTERIZE THE RANGE OF ABILITY OF STUDENTS WHO TAKE YOUR INDUSTRIAL ARTS CLASSES AS ELECTIVES AT EACH GRADE LEVEL YOU TEACH. *("√" ONE BOX FOR EACH GRADE LEVEL THAT APPLIES)*

ELECTIVE CLASSES	ABILITY RANGE			NOT APPLICABLE-COURSE IS REQUIRED
	ABOVE *(Top third)*	MIDDLE *(Middle third)*	BELOW *(Bottom third)*	
Grade 7	1 ☐	2 ☐	3 ☐	4 ☐
Grade 8	1 ☐	2 ☐	3 ☐	4 ☐
Grade 9	1 ☐	2 ☐	3 ☐	4 ☐
Grade 10	1 ☐	2 ☐	3 ☐	4 ☐
Grade 11	1 ☐	2 ☐	3 ☐	4 ☐
Grade 12	1 ☐	2 ☐	3 ☐	4 ☐

11. WHAT CURRICULUM GUIDE IS USED MOST FOR DETERMINING INSTRUCTIONAL CONTENT IN YOUR INDUSTRIAL ARTS COURSES? *("√" ONLY ONE BOX)*

1 ☐ Guide prepared in local school district	5 ☐ None
2 ☐ Your state curriculum guide	6 ☐ Guide prepared by yourself
3 ☐ Other state or local curriculum guide or guides	Other *(Specify)*:
4 ☐ Textbooks	

12. WHAT METHOD DO YOU MOST OFTEN USE IN STARTING A BEGINNING CLASS IN THE FOLLOWING INDUSTRIAL ARTS COURSES? *("√" IN ITEM E THOSE COURSES YOU DO NOT TEACH)*

METHODS *(Beginning class)*	GENERAL SHOP	GENERAL WOOD-WORKING	GENERAL METAL-WORKING	GRAPHIC ARTS	ELECTRICITY/ ELECTRONICS	POWER MECHANICS
a. Assign one project for the whole class	1 ☐	1 ☐	1 ☐	1 ☐	1 ☐	1 ☐
b. Divide the class into groups & assign different projects to each group	2 ☐	2 ☐	2 ☐	2 ☐	2 ☐	2 ☐
c. Students select a beginning project from a limited selection	3 ☐	3 ☐	3 ☐	3 ☐	3 ☐	3 ☐
d. Allow free selection of projects	4 ☐	4 ☐	4 ☐	4 ☐	4 ☐	4 ☐
e. Does not apply	5 ☐	5 ☐	5 ☐	5 ☐	5 ☐	5 ☐
f. Assign students Series of Sequential jobs or activities	6 ☐	6 ☐	6 ☐	6 ☐	6 ☐	6 ☐
g. Other	7 ☐	7 ☐	7 ☐	7 ☐	7 ☐	7 ☐

13. WHAT TEACHING METHOD DO YOU MOST OFTEN USE IN TEACHING STUDENTS WHO *HAVE NOT* HAD PREVIOUS WORK IN INDUSTRIAL ARTS, BUT ARE SCHEDULED IN A SECOND OR THIRD YEAR CLASS? *("√" ONLY ONE BOX)*

1 ☐ *Use more individual teacher's time*	5 ☐ *Use teaching aids*
2 ☐ *Use an advanced student who is in the class*	6 ☐ *Does not apply*
3 ☐ *Use printed instruction materials*	Other *(Specify)*:
4 ☐ *Make individual assignments in textbooks*	

14. WHAT METHOD DO YOU MOST OFTEN USE IN PROVIDING STUDENTS WITH SUPPLIES NEEDED IN YOUR CLASS? *("√" ONLY ONE BOX)*

1 ☐ *Supplies are furnished free of charge to students*	4 ☐ *School provides some supplies free, student pays for additional amount*
2 ☐ *Students pay for what they use*	Other *(Specify)*:
3 ☐ *A minimum fee is charged which is the same for all students*	

15. WHAT SIGNIFICANT CHANGES HAVE TAKEN PLACE SINCE LAST YEAR IN THE INDUSTRIAL ARTS COURSES YOU ARE TEACHING DURING THIS SCHOOL YEAR 1966-67? *("√" as many as apply)*

1 ☐ *a. I did not teach industrial arts last year*

1 ☐ *b. No significant changes made*

c. Offered new course for upper ability students

1 ☐ TITLE ____________

d. Introduced new general course without reference to

1 ☐ *ability entitled* ____________

1 ☐ *e. Intergrated industrial arts with art*

1 ☐ *f. Intergrated industrial arts with homemaking*

1 ☐ *g. Made major revision in courses to include new instruction areas such as* ____________

1 ☐ *h. Developed a close relationship between science and industrial arts instruction*

1 ☐ *i. Conducted a work experience program*

1 ☐ *j. Introduced new course for slow students entitled* ____________

Other *(Specify)*:

16. INDICATE THE DEGREE OF DIFFICULTY YOU HAVE WITH THE FOLLOWING LIST OF TEACHING PROBLEMS. *("√" the degree of difficulty for each teaching problem)*

HOW DIFFICULT			TEACHING PROBLEMS
VERY	SOME-WHAT	NOT AT ALL	
3 ☐	2 ☐	1 ☐	*a. Acquiring and teaching new or modern concepts of industry*
3 ☐	2 ☐	1 ☐	*b. Improving my ability to present industrial concepts in an interesting manner*
3 ☐	2 ☐	1 ☐	*c. Securing an adequate text book*
3 ☐	2 ☐	1 ☐	*d. Supplying supplementary problem material*
3 ☐	2 ☐	1 ☐	*e. Obtaining and using visual aids*
3 ☐	2 ☐	1 ☐	*f. Getting improved library facilities*
3 ☐	2 ☐	1 ☐	*g. Providing career guidance material in industry*
3 ☐	2 ☐	1 ☐	*h. Acquiring an adequate degree of manipulative skills*
3 ☐	2 ☐	1 ☐	*i. Arranging and conducting field trips*
3 ☐	2 ☐	1 ☐	*j. Finding adequate preparation time for experiments and demonstrations*
3 ☐	2 ☐	1 ☐	*k. Improving related lessons and/or demonstrations*
3 ☐	2 ☐	1 ☐	*l. Improvising simple equipment*
3 ☐	2 ☐	1 ☐	*m. Keeping equipment in good repair*
3 ☐	2 ☐	1 ☐	*n. Providing for the superior pupil*
3 ☐	2 ☐	1 ☐	*o. Providing for the slow learner*
3 ☐	2 ☐	1 ☐	*p. Knowing how to teach problem solving*
3 ☐	2 ☐	1 ☐	*q. Finding good industrial arts projects*
3 ☐	2 ☐	1 ☐	*r. Handling students who have not had previous industrial arts experience*
3 ☐	2 ☐	1 ☐	*s. Finding time for helping individual pupils*
3 ☐	2 ☐	1 ☐	*t. Interpreting industrial arts to the lay public*
3 ☐	2 ☐	1 ☐	*u. Keeping up with advances in technology*
3 ☐	2 ☐	1 ☐	*v. Other (Specify)*

(AS OF SEPT. 24, 1969)

17. THIS QUESTION REQUIRES FIVE KINDS OF INFORMATION FOR EACH INDUSTRIAL ARTS CLASS YOU ARE CURRENTLY TEACHING. IF MORE THAN ONE TEACHER IS TEACHING A CLASS AT THE SAME TIME, MAKE *ONE COMBINED REPORT* FOR EACH CLASS. DO NOT DUPLICATE INFORMATION.

PART A – COURSE CODE NO. Using the guide in the upper right corner, select the proper course code number for each class you teach. If you are teaching more than one class of a given course, list that code number as many times as you teach that class. If you have added course titles to our listing, use the code number you have assigned to each title added. If you teach more than 15 classes, use additional sheets of paper and give data requested.

EXAMPLE: You are teaching 3 classes of general shop, 1 class of general woodworking, and 2 classes of mechanical drawing; therefore PART A will appear as follows:

CLASS 1	CLASS 2	CLASS 3	CLASS 4	CLASS 5	CLASS 6
10	10	10	12	20	20

PART B – NO. INSTRUCTORS. Give the number of instructors who are teaching a class at the same time. *(e.g., if only one instructor is teaching a class, write the figure 1, if two instructors are teaching a class at the same time, write the figure 2, etc.)*

PART C – PERCENT TYPE OF INSTRUCTION. Give the approximate percent of time devoted to theoretical instruction (related lessons, demonstrations, etc.) AND student laboratory work (construction of projects, student planning, etc.) for each class you teach.

PART D – SCHEDULING PROCEDURE. Give the scheduling procedure for each class you teach according to the breakdown listed.

PART E – ENROLLMENT. Give the number of boys and girls enrolled in each class for each grade level listed.

Answer all parts of information for each class you teach. If any of your answers require further explanation, use the space at the bottom of the page.

The column headed "SAMPLE" is an illustration of how to complete this question.

INDUSTRIAL ARTS CODE NO.'S & COURSES

GENERAL COURSES	UNIT COURSES
01 CRAFTS	40 AIRCRAFT DRAFTING
02 COMPREHENSIVE GENERAL SHOP	41 AIRCRAFT DRAWING
03 CONSTRUCTION & INDUSTRIAL ARTS	42 AIRCRAFT MACHINES
04 DRAFTING	43 ART METALWORKING
05 EXPLORATORY	44 AUTOMOTIVE MECHANICS
06 FARM SHOP	45 BENCH METALWORKING
07 GENERAL CRAFTS	46 CARPENTRY
08 GENERAL ELECTRICITY	47 CERAMICS
09 GENERAL METALS	48 ELECTRIC POWER
10 GENERAL SHOP	49 ELECTRICAL DRAFTING
11 GENERAL TEXTILES	50 ELECTRONICS
12 GENERAL WOODWORKING	51 FINISHING MATERIALS & METHODS
13 GRAPHIC ARTS	52 FOUNDRY AND FORGING
14 INDUSTRIAL ARTS – LEVEL I	53 INDUSTRIAL DESIGN
15 INDUSTRIAL ARTS – LEVEL II	54 JEWELRY & LAPIDARY
16 INDUSTRIAL ARTS – LEVEL III	55 LEATHERWORKING
17 INDUSTRIAL ARTS – LEVEL IV	56 MACHINE DRAFTING
18 INDUSTRIAL OCCUPATIONS	57 MACHINE METALWORKING
19 LEATHERCRAFT	58 MACHINE WOODWORKING
20 MECHANICAL DRAWING	59 PATTERN MAKING
21 PHOTOGRAPHY	60 PLASTICS
22 POWER MECHANICS	61 PRINTING
23 ELECTRICITY/ELECTRONICS	62 SHEETMETAL DRAFTING
24 TRANSPORTATION	63 SHEETMETAL WORKING
25 ENGINEERING DRAFTING	64 STRUCTURAL DRAFTING
26 ARCHITECTURAL DRAFTING	65 TEXTILES
OTHER *(Specify)*:	66 TYPOGRAPHICAL DRAFTING
	67 UPHOLSTERING
	68 WELDING
	OTHER *(Specify)*:

INFORMATION FOR EACH INDUSTRIAL ARTS CLASS			INDUSTRIAL ARTS CLASSES COURSES														
		SAMPLE	CLASS 1	CLASS 2	CLASS 3	CLASS 4	CLASS 5	CLASS 6	CLASS 7	CLASS 8	CLASS 9	CLASS 10	CLASS 11	CLASS 12	CLASS 13	CLASS 14	CLASS 15
PART A	COURSE CODE NO.	10															
PART B	NO. TEACHERS TEACHING EACH CLASS	1															
PART C	% THEORY	25															
	% LABORATORY WORK	75															
	TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PART D	NO. WEEKS IN SESSION	36															
	NO. DAYS PER WEEK	5															
	NO. PERIODS PER DAY	1															
	NO. MINUTES PER PERIOD	55															

	GRADE LEVEL OF STUDENTS IN CLASS	SAMPLE		CLASS 1		CLASS 2		CLASS 3		CLASS 4		CLASS 5		CLASS 6		CLASS 7		CLASS 8		CLASS 9		CLASS 10		CLASS 11		CLASS 12		CLASS 13		CLASS 14		CLASS 15	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
PART E	Grade 7																																
	Grade 8																																
	Grade 9																																
	Grade 10	9																															
	Grade 11	6	1																														
	Grade 12	5	1																														
	TOTAL	20	2																														

USE THIS SPACE FOR ANY REMARKS YOU WISH TO MAKE

(OVER)

18. THIS QUESTION IS FOR INFORMATION REGARDING YOUR INDUSTRIAL ARTS CLASSES YOU HAVE IDENTIFIED BY CODE NUMBER IN QUESTION 17. REPEAT THE SAME CODE NUMBERS FOR THE CLASSES/COURSES YOU ARE TEACHING IN THE SPACE ALLOTTED AT THE TOP OF THE TABLE.

IN THE COLUMN REPRESENTING EACH INDUSTRIAL ARTS CLASS, PLACE A "√" OPPOSITE THE INSTRUCTIONAL AREAS WHICH YOU USUALLY TEACH APPROXIMATELY 2 WEEKS OR MORE, OR AN EQUIVALENT OF 9 CLOCK HOURS.
(See illustrated sample)

INSTRUCTIONAL AREAS			SAMPLE		INDUSTRIAL ARTS CLASSES/COURSES														
			10	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 DRAFTING	Lettering	01																	
	Sketching	02	✓	✓															
	Machine Drawing	03																	
	Design	04	✓	✓															
	Sheet Metal Drawing	05																	
	Blueprinting	06																	
	Architectural Drawing	07																	
	Engineering Drawing	08																	
	Maps, Graphs, & Charts	09																	
	Electrical Drawing	10																	
	Aviation Drawing	11																	
	Structural Drawing	12																	
2 WOODWORKING	Finishing	01	✓	✓															
	Furniture Making	02		✓															
	Cabinetmaking	03	✓	✓															
	Carpentry	04		✓															
	Carving	05																	
	Woodturning	06		✓															
	Upholstering	07																	
	Construction	08		✓															
	Millwork	09		✓															
	Patternmaking	10		✓															
3 METALWORKING	Art Metal	01																	
	Sheet Metal	02	✓																
	Bench Metal	03																	
	Jewelry	04																	
	Machine Shop	05																	
	Etching	06																	
	Heat Treating	07																	
	Foundry	08																	
	Forging	09																	
	Metals Industries	10																	
	Wire Work	11																	
	Mining Industries	12																	
	Welding & Brazing	15																	
	Plating	14																	
	Metal Spinning	15																	
4 ELECTRICITY/ELECTRONICS	Wiring	01	✓																
	Magnetism	02	✓																
	Lighting	03																	
	Appliances	04																	
	Measuring Devices	05																	
	Communications	06																	
	Electronics	07																	
	Generation	08																	
	Heating	09																	
	Transmission	10																	
	Distribution	11																	
	Transportation	12																	
5 POWER MECHANICS	Home Mechanics	01	✓																
	Auto Mechanics	02																	
	Aviation Mechanics	03																	
	Deisel Mechanics	04																	
	Marine Engine Mechanics	05																	
	Farm Mechanics	06																	
6 GRAPHIC ARTS	Letterpress Printing	01																	
	Block Printing	02	✓																
	Silk Screening	03																	
	Printing Industries	04																	
	Bookbinding	05																	
	Etching	06																	
	Photography	07																	
	Offset	08																	
	Paper Making	09																	
	Rubber Stamp Making	10																	
	Engraving	11																	
	Ink Making	12																	

(CONTINUED ON NEXT PAGE)

18. CONTINUED *(Please repeat course code numbers at top of table)*

INSTRUCTIONAL AREAS			SAMPLE		INDUSTRIAL ARTS CLASSES COURSES														
			10	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
7 CERAMICS	Keene's Cement	01																	
	Finishing	02	✓																
	Casting	03																	
	Plaster of Paris	04																	
	Glazing	05	✓																
	Slab Work	06																	
	Coil Work	07	✓																
	Pinch Ware	08																	
	Ceramics Industry	09																	
	Lapidary	10																	
	Thrown Work	11																	
8 HANDICRAFTS	Model Building	01																	
	Flocking	02																	
	Bait Making	03																	
	Fly Tying	04																	
	Soap Carving	05																	
	Shell Craft	06																	
	Metal Enameling	07																	
	Candle Making	08																	
	Boat Building	09																	
	Wire Forming	10																	
9 LEATHER	Lacing	01																	
	Tooling	02																	
	Finishing	03																	
	Stamping	04																	
	Carving	05																	
	Embossing	06																	
	Leather Making	07																	
	Shoe Making	08																	
0 PLASTICS	Finishing	01	✓																
	Twisting	02	✓																
	Welding	03																	
	Internal Carving	04																	
	Molding	05																	
	Plastics Industry	06																	
	Casting	07																	
X TEXTILES & WEAVING	Chair Caning	01																	
	Cord & Rope Work	02																	
	Raffia	03																	
	Basketry	04																	
	Sewing	05																	
	Textile Industry	06																	
	Fabrics	07																	
	Finishing	08																	
	Tailoring	09																	
	Knitting	10	✓																
Y OTHER (Specify)		01																	
		02																	
		03																	
		04																	
		05																	
		06																	

19. Total years of full time industrial experience or its equivalent, such as working in the manufacturing or construction industry. Include this year.

("X" ONLY ONE)

0 ( ) None	4 ( ) 4-5 yrs.
1 ( ) Less than 1/2 yr.	5 ( ) 6-10 yrs.
2 ( ) 1/2-1 yr.	6 ( ) 11-15 yrs.
3 ( ) 2-3 yrs.	7 ( ) Over 15 yrs.

20. Check (X) box which includes your age.

0 ( ) Under 25	3 ( ) 45-54
1 ( ) 25-34	4 ( ) 55-64
2 ( ) 35-44	5 ( ) 65 or over

PLEASE MAIL THIS FORM NOW

APPENDIX C

TECHNICAL NOTES

TECHNICAL NOTES

Sampling procedure, sampling design and the treatment of data are discussed in this appendix. Validation of response is also described with the appropriate statistical treatment.

The Universe

Identification of the Southern Appalachian Region was made by Ford.[1] A copy of his map is included in Appendix B. The eleven remaining counties in West Virginia were added to the survey. Schools were identified from lists[2] furnished by the school districts, state directories and classified when necessary by using the Directory of Public Secondary Day Schools.[3] Only those schools which were reported as having industrial arts programs were surveyed.

Sample Design

All public secondary schools listed with industrial arts programs in the Southern Appalachian Region were included in the original sample. Schools which were reported in Table I as not having programs were extracted from state directories. Schools which were not classified by enrollment size and type were classified from the Directory of Public Secondary Day Schools.

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[1] Ford, Thomas R., ed., The Southern Appalachian Region: A Survey. Lexington, Kentucky, 1962, fronticepiece.

[2] See Bibliography p.50.

[3] Directory of Public Secondary Day Schools, 1958-59. Bulletin No. DE-20031: Supt. of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

Data were analyzed as reported by the respondents. Principals reported information which dealt with administrative matters in Part I of the questionnaire. Teachers reported data related to the teacher, programs, and instruction in Part II of the questionnaire.

The West Virginia Computer Center analyzed the data in counts and percents. Many of the tables were then computed manually by the investigator.

Response

Table A shows the response by enrollment, size, and type of school. Response to Part I of the survey was 75.9 percent of which 65.4 percent of the forms were usable. Teachers responded to Part II of the survey with 71.3 percent usable forms. Forms received reporting no programs in the school for the year 1964-65 were not included.

This represented 8.9 percent of the respondents. Since 12 of the schools which reported no programs were in West Virginia, a review was made of the West Virginia Schools to determine if any schools which did not report industrial arts programs for the year 1963-64 had started programs in 1964-65, the year that the survey was made. It was found that 15 of these schools had programs. Therefore, it is believed that if response were elicited from the all nonresponding schools that replacements for at least all the 33 schools with no programs would be found. This indicates that the total number of schools reported as having industrial arts programs is reasonably correct.

Data were reported as it was received. There is no adjustment except to eliminate forms which were not usable. The number and percent

Table A Number and percent of response for schools and industrial arts teachers by enrollment size and type of school; Southern Appalachian Region, 1964-65.

Enrollment size and type	Schools with Industrial Arts Programs				Teachers			
	Adjusted Total	Usable Forms	Non-response	% of Response	Adjusted Total	Response	Non-response	% of response
	2	3	4	5	6	7	8	9
All sizes	408	277	131	65.4	520	371	149	71.3
2500 and over	1	1	--	100.0	5	5	--	100.0
1500 - 2499	17	16	1	94.1	48	39	9	81.3
1000 - 1499	48	39	9	81.2	101	74	27	74.0
750 - 999	72	53	19	73.6	97	72	25	74.2
500 - 749	105	72	33	68.6	121	84	37	69.4
400 - 499	47	27	20	57.4	37	29	8	78.4
300 - 399	44	25	19	52.3	35	26	9	74.3
200 - 299	34	22	12	64.7	38	22	16	57.9
100 - 199	29	17	12	50.7	27	15	12	55.5
1 - 99	11	5	6	45.4	11	5	6	45.4
All sizes	408	277	131	65.4	520	371	149	71.3
Junior-Senior H.S.	126	88	38	69.0	168	104	64	69.0
Junior H.S.	116	77	39	66.5	127	97	30	76.4
Traditional H.S.	94	62	32	68.1	119	90	29	75.6
Senior H.S.	72	50	22	69.3	106	80	26	75.6

Note: Detail may not add to total due to rounding.

of response are of sufficient size to adequately represent the universe without treatment.

Only items responded to were reported. No adjustments were made for nonresponse to individual items in the questionnaire. Where nonresponse items warranted they were reported in the appropriate table.

Comparability

Since no information is available which identifies school in the region they were identified as described under sample design. This survey identified 848 public secondary schools in the region from district and state directories.

Limitations of Data

The data contained in this report are as they were reported by the 277 principals and 371 teachers in the responding schools. Errors which may exist are due to: the probability that bias was built into the instrument, nonresponse, clerical errors, machine processing, and errors by respondents. An effort was made to minimize errors of all types by reviewing all processes carefully, and by a personal follow-up to validate the response.

The standard error of percent used in this study is a valid test of significance of a response when the number is larger than 50 and the percent less than 95. The standard error is equivalent to the square root of the percent multiplied by 100 less the percent divided by the square root of the total population.[1]

When a response occurs by chance, a nonresponse is equally as likely to occur. The mean of chance occurance of a response is 50 percent. The mean response of the region's school (Table A) is 65.4 percent. The total population with industrial arts is 408 schools. By the formula in the preceding paragraph, the standard error is 2.3. The z-score = 65.4 - 50 + 2.3 = 6.4 which is significant beyond the .01 percent level of confidence. Were additional samples to be taken of the universe, using the same procedure, any member of the population in the universe is as likely to respond as it is likely not to respond. Since the standard error of the estimate indicates that chance response from the nonresponding schools would not significantly affect the data, it is concluded that these data are representative of the universe.

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[1] Garrett, Henry E. and R. S. Woodwarth. Statistics in Psychology and Education. New York: Longmans, Green and Co., 1958. p.197.

As the size of subclasses such as enrollment sizes or types become smaller, the standard error becomes larger and the probability of error due to nonresponse increases. For a population of less than 50, one degree of freedom is lost (subtract one). Small numbers have a tendency to overestimate the standard error.

The investigator has visited a large number of schools in West Virginia which included nonresponding schools. By observation, the programs did not differ from programs of the responding schools. Had these schools and teachers responded, in all probability 99 percent of the time, their response would not have changed the data.

Validation of Response

The investigator visited a stratified random sample of 21 (6.8 percent) of the 310 responding schools. They were selected by a procedure which assured the inclusion of schools from each state in proportion to the number of schools represented by each state in the population.

Principals' Response

Principals were given a second copy of the same instrument (Part I, Appendix B) as had been used in the original survey. They were asked to respond a second time to certain selected items. Numbered as they were in the original instrument the items are:

1. Total membership in your secondary school on reporting date closest to September 24, 1964.
2. Indicate your type of school organization by placing a "✓" in the appropriate place.
4. Is industrial arts taught in your school?
5. Give the total number of industrial arts laboratories (drawing rooms and/or shops) you have in your school. Do not include vocational shops unless they are used for industrial arts purposes.
12. IMPORTANT: Please list the names of your teachers of industrial arts courses, and give each of them one of the enclosed yellow form - Part II, with a self-addressed envelope. If additional forms are needed for any teachers, please place a "✓" opposite their name on the list and forms will be sent directly to them.

The follow-up response by the principals was the same as the original response for all principals except on two items. In one case a principal responded the second time to an item to which he had failed to respond on the original questionnaire. The other difference resulted from a principal's failing to report an existing laboratory.

Chi Square Test of Significance indicates no significant difference in the original response and the follow-up at the .01 level of confidence. Additional samples from the same population can be expected to reveal the same information 99 percent of the time.

Teachers' Validation

Teachers were given the same instrument (Part II, Appendix B) as had been used on the original survey. Each teacher was asked to respond a second time to the items. Numbered as they were in the original instrument the items are:

2. "✓" the type of state teaching certificate you hold.
3. "✓" the highest educational degree which you have earned.
7. "✓" your total years of experience teaching industrial arts (grades 7-12) include this year.
18. This question is for information regarding your industrial arts classes you have identified by code number in question 17. Repeat the same code numbers for the classes/courses you are teaching in the space allotted at the top of the table.
20. Check "✓" box which includes your age.

Personal interviews revealed that no teacher reported untrue or misleading information intentionally. A few differences occurred in the follow-up. On items 7 and 20 one teacher in each case did not take into consideration that the data reported were to have been as of September 24, 1964. Another teacher who taught one course five periods a day reported it one time only instead of five times.

X^2-Test of Significance at the .01 level of confidence indicates that additional samples from the same population would not differ significantly 99 percent of the time. It is concluded that the data collected and analyzed in this report represents activities and conditions as they exist.

ERIC REPORT RESUME

Resume Date: January 7, 1968

Title: Study of Industrial Arts Education in Public Secondary Schools of the Southern Appalachian Region

Personal Author: Charlie J. Collins

Institution Source: West Virginia University, College of Education, Morgantown, West Virginia, 26506

Publication Date: January 1, 1968

Contract Grant Number: 05-5-10-101

Pagination: 169

Retrieval Terms: Study of Industrial Arts Education in Public Secondary Schools of the Southern Appalachian Region

Abstract: Less than half of the region's public schools have industrial arts programs. Three courses; general industrial arts, drafting, and woodworking comprise 85.9 percent of all courses taught.

Teachers' salaries, the number of teachers per school, monies spent for equipment and supplies, and the general condition of the laboratories reflect the poverty of the region.

Industrial arts programs in the region are similar to programs of the nation, but are farther behind the times.